

PRINCIPLES
AND
PROCESSES
of
EDUCATION
by
W.H. BRUCE



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PRINCIPLES AND
PROCESSES *of* EDUCATION

BY

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Dallas, Texas

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TO
THE TWENTY THOUSAND TEACHERS OF TEXAS

**So Many of Whom Are My Personal Friends,
And Whose Esteem I so Highly Prize,
This Volume Is Dedicated**

**With the Professional Regard and Personal Affection
of the Author.**

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CONTENTS

CHAPTER I

THE BIOLOGICAL BASIS OF EDUCATION 3

The Young of Lower Orders of Animals. Life Cycles. Parental Care. Human Infancy. Period of Infancy Lengthened. Heredity, Family Traits, Acquired Characteristics. Congenital Traits Transmitted. Talents Run in Families. Man Can be Educated. Man Must be Educated. Period of Plasticity. Youth the Time for Habit Formation. Importance of Early Training.

CHAPTER II

THE AIMS OF EDUCATION 14

Definition of Education. Main Aim of Education. Spartan, Athenian, and Roman Ideals. Modern Ideals. Development and Adjustment Aim. Knowledge Aim. Culture Aim. Service Aim. Selfish Conception of Education.

CHAPTER III

EDUCATIONAL AGENCIES 23

Environment. Experience. The Home. The School. The Vocation. The State. The Church.

CHAPTER IV

THE SCHOOL 31

The School the Outgrowth of Complexity of Society. Ancient Views of Education. Modern Views of Education. Standards.

CHAPTER V

PHYSICAL CONDITIONS OF THE SCHOOL 36

The School Site. The Buildings. The Grounds.
Lighting. Heating. Ventilation. Furniture.

CHAPTER VI

THE FUNCTIONS OF THE SCHOOL 44

Specific Aims of Education. Acquisition of
Knowledge. Power. Skill. Character. Continuous
Education. Social Center Movement. Extension
Work of Universities.

CHAPTER VII

THE COURSE OF STUDY 53

Definite Course for Each School. Doctrine of
Formal Discipline. Individual Aptitudes. Types of
Memory. College Entrance Requirements. Two
Standards Attempted by High Schools. Suggested
Method for the Correlation of Schools. The Efficient
Man. Liberal and Vocational Education. The Elec-
tive System. Wide Range of Electives Impossible.
Groups of Studies Practicable.

CHAPTER VIII

THE CHARACTER, QUALIFICATIONS, AND REWARDS OF THE
TEACHER 72

Character Essential. Society Demands High
Character of the Teacher. Scholarship. Growth.
Opportunities for Growth. Means of Growth. Meth-
ods of Growth. Personality of the Teacher. Atti-
tude of the Teacher. Types of Teachers. Rewards
of the Teacher.

CHAPTER IX

SENSORY EDUCATION 96

All Knowledge Comes Through the Senses. First-
hand Knowledge Most Reliable. Careless Observers.

Laboratory Methods. Inductive Philosophy. Use of Pictures and Picture Machines. Drawing and Music. Agriculture. Manual Training. Domestic Science. The Teacher is the Workman, the Mechanic, and the Architect.

CHAPTER X

THE CONCEPT IN EDUCATION 116

The Education of Helen Keller. Sensation. Perception. Observation. The Percept. The Image. Imagination. Apperception. Changes in the Concepts. Formation of Concepts.

CHAPTER XI

THE PROCESS OF THINKING 126

The Three Stages of Thinking. Conception. Judgment. Reasoning. Remedy for Faulty Judgment. Thinking Fatigues the Mind. Credulity, Skepticism and Prejudice. Achievements of Original Thinkers, Newton, Roemer, Adams, Le Verrier. Induction. Deduction. Perfect Induction. Imperfect Induction. Mathematical Induction. Demonstrative Reasoning. Algebraic Method. Geometric Reasoning.

CHAPTER XII

TEACHING PUPILS TO THINK 145

Attention to Details. New Objects. Excursions. One Thing at a Time. Language.

CHAPTER XIII

THE LESSON 154

I. THE LESSON ASSIGNMENT

The Lesson Assignment. Principles of the Assignment. Methods of the Assignment. Rules for the Assignment. Time for the Assignment.

CHAPTER XIV**THE LESSON CONTINUED 169****III. THE LESSON PREPARATION**

Incorrect Methods of Study. Real Study. Preparation of the Student. Preparation of the Teacher. Lesson Plans.

CHAPTER XV**THE LESSON CONTINUED 204****III. THE LESSON RECITATION**

The Recitation. The Purposes of the Recitation. Rules of the Recitation. Forms of the Recitation. Methods of the Recitation. Steps of the Recitation.

CHAPTER XVI**TESTING THE RESULTS OF TEACHING 228**

The Recitation Period. The Study Period. The Playground Period. The Written Test. The Examination.

CHAPTER XVII**SCHOOL GOVERNMENT 250**

Discipline. Purpose of Discipline. School Regulations. Enforcement of Regulations. Penalties and Punishment. Principles Governing Penalties and Punishment.

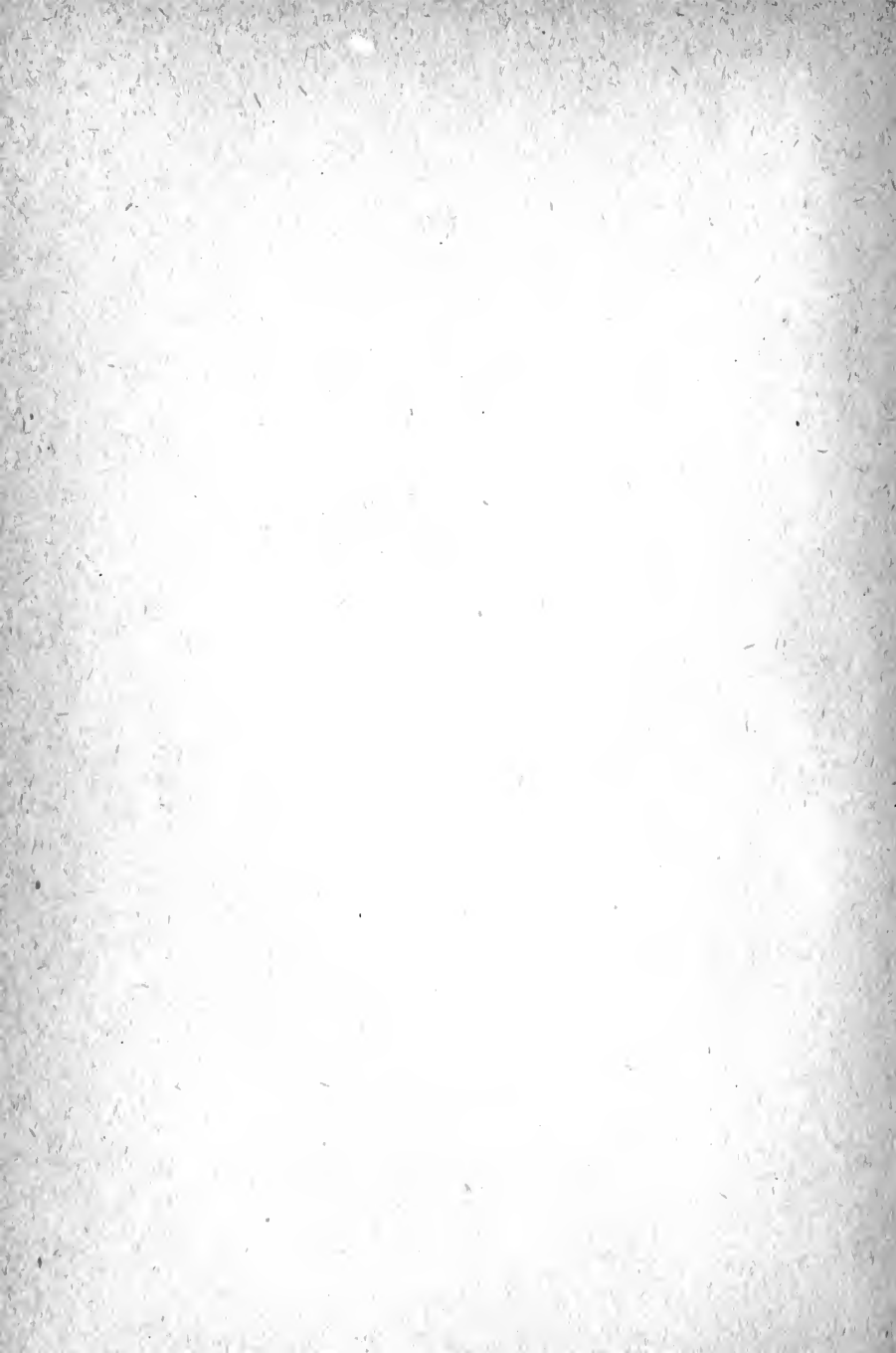
CHAPTER XVIII**PLAY AND ATHLETICS IN EDUCATION 257**

Kinds of Play. Modern View of Play. Value of Play. Athletics in Modern Schools. Advantages of Athletics.

CHAPTER XIX

THE RURAL SCHOOL PROBLEM 273

The Rural Problem. Exodus from the Country.
The Rural School. Consolidation of Schools. Transportation of Pupils. Course of Study. County Supervision. The County Institute. The Social Center.



P R E F A C E

The author's aim in this book has been to state in simple and compact form some of the fundamental principles of education and to suggest how these may be applied in the processes of teaching in our public schools.

The book is not a treatise on School Management. To have undertaken a discussion of the principles of school administration would have extended the volume beyond its contemplated size. There are many excellent treatises on this phase of school work that are available to the teacher.

Neither has there been an attempt to particularize concerning the methods of teaching specific subjects, but it is hoped that the careful reader will find throughout the work a discussion of the principles upon which the general processes of the teaching of all subjects are based.

The author is aware that the book is but a meager contribution to the volume of extant pedagogical literature. Throughout the work he has endeavored to stress principles instead of details, and to make helpful suggestions instead of dogmatical statements. He believes with Emerson, that "the best part of a book is not what it contains, but what it suggests."

The author's obligations in the preparation of the work are heavy. Hon. W. F. Doughty, State Superintendent of Public Instruction for Texas,

PREFACE

has read all the manuscript and made valuable suggestions from time to time. Mr. W. C. Edwards, editor of the Record and Chronicle (Denton), has been of great service in carefully reading and criticising the manuscript. Mr. J. R. Swenson, Miss M. Anne Moore, and Mr. J. W. Smith, all of the North Texas State Normal College, have rendered valuable assistance. Mr. Swenson wrote Chapters XVIII and XIX; Miss Moore contributed Chapters XII, XIV and XV, on "The Lesson"; Mr. Smith prepared the index, by means of which the value of the book is greatly increased. The competency and the interest of Miss Gertrude Wear, with the assistance of Mr. A. C. McGinnis, in preparing type written copies of the manuscript, rendered it possible for the book to appear on time. Proper recognition has been given to those who kindly furnished the lesson plans where the plans, themselves, have been introduced.

Denton, Texas.
February 4, 1916.

CHAPTER I

THE BIOLOGICAL BASIS OF EDUCATION

If we compare the young child with the young domestic animal, we are impressed with the utter helplessness of the child, and the long time it requires the constant and watchful care of the parent. If we contrast the young of the domestic animal with that of a still lower order of animal life, we find that in the ability to take care of itself the young of the lower order is the superior. Continuing this examination backwards or downwards, through different orders of animal life, when we reach the protozoon, the lowest order recognized by the biologist, we find that the young has all the traits of the mature protozoon. **The young animal**

If a drop of water, taken from a stagnant pool and placed on a glass slip, be examined with a good microscope, it will be found teeming with animal life. These minute animals, too small to be seen with the unaided eye, have all the functions necessary to life. The entire body of one of these protozoa is composed of a single cell, whereas the body of an animal of higher order is composed of almost innumerable cells. Selecting for examina-

The
amoeba

tion the amœba, one of the simplest of protozoa, we find that the body is not made up of distinct organs, such as brain, heart, and lungs. There are no nerves, no muscles, no stomach. The single cell constituting the body performs in a simple manner all the functions necessary to the life of the amœba. The soft body, coming in contact with a particle of matter suitable for food, presses itself around it and absorbs it. The entire structure of the cell performs the same function for the amœba that the stomach performs for the higher animal.

Reproduction
of the amoeba

The amœba's method of reproduction is equally simple. When it reaches a certain state the body becomes elongated. About midway between the ends begins a depression or fission, which increases until the body is completely divided into two separate parts, each part becoming a distinct animal, a duplicate of the old one. Each is half the original parent. This process is called reproduction by *fission*.

Life cycle
of the
mosquito.

Passing from the protozoon to a much higher form of life, let us observe a few species of insects. The mosquito deposits its eggs in stagnant water in which the young larva finds suitable food. When it has passed through the larval and pupal stages, it emerges from the water a complete adult mosquito, in all respects equal to the parent. The entire cycle from egg to adult has been no more than ten days. As a mosquito, it has no childhood and no education.

Wasps de-
posit supply
of food in
nests.

The wasp, a higher order of insect, prepares a crude kind of nest, in which are deposited the eggs,

together with the bodies of spiders or small insects and larvæ to serve for food for the young when the eggs have hatched. With food at hand sufficient to take them through the larval stage, the young wasps come out fully developed.

Most species of spiders spin cocoons in which to deposit great numbers of eggs. Some species carry these cocoons about with them for protection of the eggs until they are hatched. Then the young spiders feed upon one another, and but few of the most vigorous survive.

Spiders protect cocoons containing their eggs.

The parent bird gathers food for the young and guards the nest often at the risk of her own life while the young are helpless. It is only a few weeks, at most, however, until the young birds can spread their wings, fly away, find their own food, and avoid all danger.

Birds provide for their young until they can fly.

Mammals in the wild state conceal their young, nourish and protect them during infancy, but in a few months the young become self-sustaining and are abandoned and forgotten. Birds and mammals, having a brief period of infancy, are trained by their parents in some instances, young birds being taught to fly and kittens to catch mice.

Mammals care for their young for short time.

Summing up, these instances illustrate the fact that in the lowest forms of animal life infancy is lacking altogether, and the new-born animal is not dependent upon the parent, but it instinctively meets all the demands of its simple life as efficiently as it ever will. But it can not profit by experience. In all things it acts just as its ancestors acted. It can do nothing to vary from its progenitors. Nature, or heredity, has done every-

Infancy lacking in lowest forms and short in higher forms of life.

Heredity, not education, the dependence of lower animals.

thing for it; education, nothing. In its organism there are no nerve cells to be adjusted; there is no period of infancy, for no such period is necessary. The instances cited illustrate also that the young among vertebrates are dependent in varying degrees and for varying lengths of time upon parental care, the period of helplessness and dependence increasing as the type of animal rises in the scale of complexity and intelligence. For the young of the vertebrate, or higher order of animal, heredity has done almost everything. Some necessary nervous connections have not been made before birth. It is not altogether able to survive if neglected or unprotected. It has something to learn before it can become self sustaining. That is, it is educable. But the capacity for education, even for birds and mammals, is quite limited. The only developing agency of the species is the relentless elimination of the weakest.

Elimination of the weakest, a developing agency.

The human infant helpless.

Helplessness of the Infant.—Contrasted with all all other orders of animal life, man is unique. Destined for the most complex and varied future, he is, at birth, the least prepared for it. Of all animals he is at birth the most utterly helpless, the most dependent. Left unattended, he could survive but a few hours. He enters the threshold of life with few of the nerve connections and adjustments made, and the comparative slowness with which these connections are made explains the long time required for their completion and the preparation of the human infant for its life.

Nerve connections made slowly.

Man does not rely upon instinct.

But this delay and these deficiencies in undeveloped instincts are vastly overbalanced by his infin-

ite potentialities. It is not that the child has fewer instincts than the young of the lower orders of life, but that he is less dependent upon instinct and relies more upon the ability to choose among instincts.

Even in savage life, where the chief nervous connections necessary are only those that enable man to supply rude shelter, simple food, and crude clothing, and to fashion the common implements of the hunt and the hand-to-hand conflict, the period of infancy is years longer than that of the higher orders of mammalian life. In the complexity of a vastly higher civilization, the child's dependence upon parental and institutional support is correspondingly longer.

Period of human infancy is long.

The human infant seldom learns to walk before the end of the first year; his speech is fragmentary for two years more. His babyhood is spent under the immediate tuition of the other members of the family, his childhood in the elementary school, his youth in the high school, and if he prepares with any degree of adequacy for active participation in a learned or scientific profession, several years beyond his legal majority must be spent in university or technical school, largely dependent upon others for guidance and support until twenty-five or thirty years of age. Heredity has done for him comparatively little. Education must do for him a great deal. He is capable of progress. He need not live the life of his parents. His generation need not be like that of his father.

Heredity does comparatively little for man.

Education must do much.

In another notable way is man differentiated from the animals next below him. They profit to

Man's inheritance.

a limited extent from their individual experiences; he profits, not only from his own experiences, but also from the experiences of others. To him, ancestry has transmitted its history and its accumulated knowledge, its institutions, and its conquest of nature. He knows of the dangers, trials, triumphs, and discoveries of the race, and, as a generation, he begins where the preceding generation stopped.

Heredity.

Heredity.—It is pertinent to enquire here exactly what the child owes to heredity. Heredity includes those possessions that an organism brings with it into the world. If heredity has done nothing for them, all children are born with equal possibilities. Investigation in any home readily discloses the fact that there are marked differences between children of the same parents; differences in traits, capacities, and proclivities.

Individuality in man.

Family traits.

Family Traits.—The variations between children of the same parents are, as a general rule, less marked than those between children of different parentage. There are usually family traits and resemblances more or less marked in physical features; color of the eyes or the hair, facial expression, etc. Even if the physical likenesses seem lacking among brothers and sisters, frequently there are noticeable resemblances in mental traits, aptitudes, tastes, or tendencies.

If we study the histories of different families, we will often find that each has had its own aptitudes for several generations. Some have been characterized by scholarship or achievements in science or love of the fine arts, while others have

been notorious for penuriousness, dishonesty, or thriftlessness. Investigation of a family through several generations has disclosed such individual traits of an ancestor throughout a long line of posterity.

One of these investigations has brought into prominence the descendants of Jonathan Edwards, an American clergyman of the eighteenth century. He was a man of exceptional intellect, signal ability, sterling character, and broad education. Among the more than 1,400 of his descendants who have been located, were found many whose accomplishments in various fields rendered them conspicuous—college presidents and professors, ministers, physicians, governors of state, members of Congress, and an almost total absence of paupers and criminals.

**The Edwards
Family.**

The descendants of a thriftless fisherman, who was born in New York in 1720, have afforded another remarkable illustration of the constant reappearance of a family characteristic. Among the more than 1,200 individuals descended from this fisherman, who have been located, were found 200 convicted criminals, many habitual thieves and burglars, some murderers, and more than 300 professional beggars. Immorality of the lowest type was a constantly recurring characteristic of this, the notorious "Juke Family."

**The "Juke
Family."**

Investigation of a line of descent from a feeble-minded girl led to the discovery that, of about 200 individuals, found in what Dr. Gordon calls the "Kallikak Family", more than 150 were feeble-minded, noted for their delinquency, degeneracy,

**The
"Kallikak
Family."**

imbecility, pauperism, and criminality.

While, by a few writers, heredity is used to include those qualities, characteristics, and habits, acquired by parents in their lifetime, it is no longer generally believed that acquired traits are transmissible, since all evidence accumulated on this subject does not point to an unquestioned example of the transmission of an acquired characteristic from a parent to a child. The preponderance of competent opinion is now that acquired traits are transmitted rarely, if ever, and that if there be a transmission of such traits, it takes place in so small a degree as to be altogether negligible.

We may assert, therefore, that children inherit from their parents only those characteristics which the parents, themselves, inherited—characteristics that are congenital, inherent, in-born in the race.

Admitting that talents “run in families”, one is constrained to believe that the children of gifted parents are much more apt than others less fortunately born to develop those talents which made their parents notable. There is now no dispute concerning the advantages of birth, considered as to the in-born capacities derived through racial inheritance. As certainly as it will tell in the thoroughbred horse, “blood will tell” in man, for, as Emerson says, “There must be capacity for culture in blood”.

Many of the problems of genius are still unsolved. How a Shakespeare, a Poe, or an Edison appears suddenly is not understood. Educa-

Acquired characteristics not transmissible.

Congenital traits transmissible.

Talents run in families.

Genius not understood.

tion can not do all. It develops but it does not create. Education does not supply the capacity; it assists the individual to make the best use of his inherited capacities, his training, experience, and environment. It can not develop a mediocre mind into a master in any art or profession.

Education develops: it does not create.

Much of the deftness of touch that leads to pre-eminence in music, in surgery, and in painting is in-born. Education ought to discover such talent or genius, and provide the opportunity for its development to the highest usefulness, as well as to raise the ordinary individual to the level of the race.

Preeminence often due to in-born capacity.

The individual can not control his birth, his talents, or his lack of talent descended unto him from previous generations, but he is born free to live his own life, to work out, within the limit of his capacity, his own destiny. The acquired traits of his parents are denied him, but he comes into his life unhampered by inherited prejudices, predilections, biases, idiosyncrasies, or their acquired tendencies. He is rich in the common inheritance and achievements of his race; he has a share in the improved social and economic conditions which have been handed down to him by his ancestors.

Every individual free to live his own life.

Educability.—The capacity for receiving education hinges in all the animal kingdom on the comparative size of the cerebrum, which indicates the capacity for construction, the power of forming adjustments, the adaptability to environment. The recognition of this fact (now no longer seriously questioned) gives to man the greatest *capac-*

Significance of size of the cerebrum.

Man can be educated.

Man must be educated.

Necessity for long period of infancy.

Period of plasticity

Education more difficult after adolescent period.

Youth the time for habit formation.

ity for education. It gives him, too, the greatest *need* for education, for, because of his lack of prenatal nerve adjustment and of the inability of his parents to transmit to him their acquired characteristics, without education—did he survive—he would remain the most helpless of all creatures.

Hence, the necessity for a prolonged period of infancy, a period of the acquisition of experiences, of development of faculties, of acquiring the power of adaptation to environment, of preparation for complex existence.

Period of Plasticity.—There is still another fact of stupendous import that must not be ignored. The period of immaturity, including infancy, childhood, and adolescence is also the period of plasticity, the period of adjustment—in other words, the period of education. Those adjustments that fit man for the higher, broader, and richer life, immeasurably above the attainment of the lower animal, must be carefully formed while young. After adolescence the nervous tissue loses some of its plasticity; the formation of new connections becomes more and more difficult as the years go by. It is said that after the age of twenty-five no one learns to speak a new language without accent. Youth is the most opportune time for habit formation; impressions are then more easily made and are most unalterably fixed. Later impressions are less vivid and less permanent. Habit of neatness, of punctuality, of industry, of thoughtful observation, formed when young, cling to one through life frequently. Attempts to acquire in later life those delicate tastes that

mark culture, or even to master the conventionalities of society, generally end only in failure, and often render ludicrous those affecting them. High ideals and great ambitions can be implanted in the minds of the young, and these properly cared for, ennoble the entire life, while a neglected youth often results in low ideals, lack of ambition, and a disappointed old age.

At sixteen the greater number of personal habits have been formed, the ideals established, and the manners crystallized. Some writers seem to delight in discovering examples of great thinkers, scholars, or inventors, who, in youth, were indolent, careless, and intractable. Doubtless many such examples may be found, but their number might be multiplied many times without detracting from the tremendous importance of proper education during the adolescent period of life.

**Importance
of early
training.**

CHAPTER II

THE AIMS OF EDUCATION

Definition of
education
difficult.

It is well nigh impossible to give a definition of education that would be accepted by even a respectable minority of those whose experience and training give them the right to speak authoritatively. The subject is so vast; it presents so many phases; it can be surveyed from so many viewpoints, that differences of opinion as to what education is, should not occasion surprise.

An individual's conception of the aims of education is determined by his ideals of what a man ought to be; a nation's conception, by its ideal of what a good citizen is. There are as many *types* of education as there are types of manhood.

One of the aims of education is the indoctrination of the young into correct standards of desire, safe criteria of conduct, and right conception of life. The child is led more easily in the direction of his wishes, therefore, his inclinations should be directed while he is still young. Adults, themselves, endure drudgery only when it promises the realization of something that pleases the fancy, gratifies ambition, or offers satisfaction of some kind.

Main aim of
education.

Spartan
education
emphasized
duty to
State.

Spartan Education.—Sparta affords, probably, the best illustration of that type of education which suppresses the individuality of the citizen

for the benefit of the State. To the ancient Spartan, patriotism was the overshadowing virtue. To him duty to State was paramount. The warrior was the ideal man. The constant menace of rebellion of conquered tribes, political jealousy of other cities, arising also to power and affluence, caused Sparta to emphasize military training. The Spartan aim of education was, therefore, to develop physical strength, to instil courage, to induce fortitude, and to inculcate obedience to authority. Spartan education concerned itself only with the duty of the citizen to the State; it totally ignored the duty of man to man.

Athenian Education.—Athens esteemed beauty as well as strength. Symmetry and proportion were characteristics of her architecture. Athenian education cultivated the arts of peace as well as those of war. It laid great emphasis upon culture as displayed in architecture, sculpture, painting, and literature. Wisdom in council was regarded as praiseworthy as courage on the battlefield.

Athenian education emphasized culture.

Roman Education.—In Rome education had a cast that in modern expression would be termed practical. The concrete appealed to the Roman mind more forcibly than the purely abstract. The Roman prized the useful more highly than the aesthetic. He strove for achievement of something of material value. He placed a lower estimate upon the skill necessary to the production of a statue or a painting than upon the knowledge requisite in the construction of a highway or an aqueduct.

Roman education emphasized the useful.

In both Athens and Rome patriotism was a

virtue, cowardice a vice, and treason a crime, but in neither was the individual despoiled of his individuality.

In personal bearing the Spartan exhibited strength; the Athenian, grace; the Roman, dignity. The Spartan idealized courage; the Athenian, beauty; the Roman, utility. In both Athens and Rome the statesman and the orator shared honors with the warrior.

Many types of the more modern education have partaken of the elements of the types of Sparta, Athens, or Rome. Most modern types have been different blends of two or of all of them, modified as the changes in social and economic conditions have from time to time demanded.

Although different ages, different races, and different nations have always had different educational ideals; although philosophers have been at variance concerning educational aims and processes, there is not now a wide diversity of opinion among students of education with respect to what education ought to do for a man; what, in the main, it ought to make of him.

Racial differences, influences of environment, and inherited predisposition account for the contrariety of doctrine that has bewildered the young student of education, and caused him to doubt that education is a science. Candid, sincere, thinkers often reach contradictory conclusions, but the iconoclast may be safely charged with unwarranted assumptions and with the advocacy of theories that are sometimes advanced for solely mercenary or selfish purposes. Some cults, schools,

Modern education is a blend of former types.

Man craves to be a pioneer in something.

and sects have, no doubt, owed their origin to influences not wholly sincere. Man naturally craves to be a discoverer, a pathfinder, and the temptation to claim a new discovery or to evolve a new theory is sometimes too great for one whose passion for attracting public attention is excessively developed.

Adjustment.—That education means the development of all the potentialities and capabilities of man, it is substantially agreed. It is the process of leading him into the full possession of all the achievements of his racial inheritance. Education means his development along the lines of the highest and best ideals attained by civilization. It is a process of adjustment to conditions, circumstances, state of society, to climate, to human institutions, to ideals of probity and integrity and conceptions of perfect manhood developed by centuries of human struggle towards perfection.

Education is development and adjustment

It is with difficulty that species of the lower animals adjust themselves to environments that present even little variation. Man, in order to attain to his highest estate, must acquire the ability to adjust himself to environment of wide variation. That he has done so, and is continually doing so, is obvious. He meets changing conditions of climate, of seasons, and of weather by change of clothing and food. By his knowledge of producing fire and manufacturing ice, he renders habitable alike the frigid and the torrid zone.

Man adjusts himself to conditions.

In his efforts better to adjust himself to environments, to improve his social and economic conditions, he has learned to control, direct and subdue

Man controls the forces of nature.

the forces of nature, substituting them for his own muscular energy. He has learned in field and farm, in mill and mine, at home and on the street, from books, laboratories, experiments, lectures, museums, travel, and associations.

Quote
There are different degrees in the value of knowledge.

Knowledge.—Every phase of life is educational. All experiences produce knowledge and add to its store for each individual. All knowledge is valuable, but there are various degrees of value. Some knowledge—some facts—are too trivial and insignificant to employ the mind when it can be more profitably directed to the quest of knowledge of real moment. Some facts, however—themselves seemingly insignificant—are indexes that point to more valuable facts. The immense advance made in the progress of the race by the use of the numerous kinds of steam engine is due to the knowledge of the apparently unimportant fact that liquids subjected to heat vaporize with enormous expansion.

Society demands the diffusion of knowledge.

The diffusion of knowledge is necessary to its becoming a factor in education. Society demands that all knowledge be made available. Copyright and patent right laws are made to encourage original thought and investigation, but the discoverer of a new principle or the inventor of a new application of an old principle is expected to bestow his discovery upon the public. He must not withhold that which he has found to be capable of contributing to the health or happiness of mankind.

Culture is concerned in what the man is.

Culture.—Culture is conceded to be one aim of education. Culture is a devotion to the best in all phases of living; it is love of the ideal, zeal

in quest of the highest elements and finest fruits of civilization, liberality of mind, sympathy with all things that contribute to the charm of gentle, gracious, affable demeanor among men. It is that magnanimous and sympathetic attitude towards one's fellowmen that makes one prefer to direct them rather than to govern them. As applied to the process of education, culture differentiates between the liberal education and the strictly professional or technical. Culture is concerned more in the man than the workman, the chemist, or the physician. It is interested more in *being* than in *doing*, in the ability to appreciate excellence anywhere and everywhere, and in the training that enables a man to discriminate in his choice of the best. Culture denotes a broad sympathy that extends beyond the boundaries of state, nation, or race. As Dr. Eliot says: "The worthy fruit of academic culture is an open mind, trained to careful thinking, instructed in the method of philosophic investigation, acquainted in a general way with the accumulated thought of past generations, and penetrated with humility."

Service.—Another recognized aim of education is *service*. The notion that the aim of education is to give an individual such an advantage over his fellowmen that he can avoid work and have them to labor for him is a vicious misconception of the purpose of education. Some parents, solicitous for their children's welfare, and ambitious for their preferment, cultivate in them mischievous ideas concerning the import of education. The selfish incentive that regards only the boy's pro-

Selfish
conceptions
of education
harmful.

motion in his education is too narrow, and it often results in disappointment to the parent and the discomfiture of the boy. Prisons and almshouses are tenanted by those whose misconception of life and disregard for the rights of others had caused them to lead profitless lives, under the delusion that education grants special privileges and exemptions, and enables the educated to "live by their wits" at the expense of others.

The chief reason that a man should acquire knowledge is not that he only, but that all others, may be better for its acquisition. The true incentive to attain skill, culture, and character is that society, as a whole, may be benefited by their attainment.

A far nobler conception of education is that it is a preparation for service, for social efficiency. A socially efficient man is he who can *earn* his own living, who does not interfere with others in earning theirs, and is able to do his part in promoting the progress of his generation. To earn a living is to pay for it; not to receive it of society without equivalent return. One should be able and willing to render service equal in value to the compensation demanded. A socially efficient man is in no respect a parasite. His vocation is devoid of any trace of mendicancy. "Full value returned" is the motto of him who would feel that exaltation of spirit that can come only to him who knows he is worth what he gets, and that the world is more his debtor than his creditor.

The socially efficient man must engage in some employment that is either directly productive or

The socially efficient man and his ideals of education.

ultimately contributory to the productivity of others. His vocation must be creative of values.

There is a variety of occupations and industries in which there is opportunity for rendering useful service. The farmer, the ranchman, and the fisherman, furnish products for food; the mechanic, the carpenter, and the manufacturer supply the necessities and the comforts of the family; the physician protects the public from the ravages of disease, the minister directs to higher motives of life, the teacher contributes to public intelligence—all these either directly or indirectly minister to the productivity of the workmen in other vocations and occupations.

Whoever by his invention or discovery makes it easier for man to be healthier or happier, who increases the capacity for physical or mental effort, who facilitates the extraction of natural riches from the soil, the sea, the forest, or the mine, or who finds a more effective means of converting these products into articles of usefulness is socially efficient. Whoever paints a picture that inspires to loftier ideals or purer thought, who carves a statue that elevates the tone of living, justifies his own existence. Whoever writes a poem or a book, or delivers an oration that animates the weak, encourages the despondent, or reclaims the wayward, is a benefactor.

How much of man's happiness, as well as his productivity, is indebted to Janssen for the microscope, to Pasteur for the discovery of the cause and cure of hydrophobia, to Jenner for the vaccination against smallpox! How much suffer-

Opportunities for service are numerous.

Different ways in which a man may serve his generation and posterity.

ing has been averted by the use of anæsthetics as first applied by Dr. Crawford Long!

A great field is always open to the efficient man who seeks new means of converting crude products into articles of usefulness. Among numerous examples the history of the products of cotton seed is a good illustration. Long after cotton became an article of commerce, the seed was thought valueless. For it there was neither demand nor market. Ginners stipulated that their patrons must remove their cotton seed. Somebody discovered that the seed was a good fertilizer, then it was found an excellent food for cattle, afterwards the oil of the seed was extracted and refined. The perfect edibility of the oil and its by-products makes them suitable for all purposes for which animal fats are used. Two of these by-products, oleomargarine and lard compound, are excellent substitutes for butter and lard, respectively. Various kinds of soap and many toilet articles are derivatives of the once valueless cotton seed, and through intelligent experimentation, what was once an unmarketable product has become a staple article of commerce.

**A practical
illustration
of efficient
service to
mankind.**

CHAPTER III

EDUCATIONAL AGENCIES

Whatever influences one in such a way as to change his character or his manner of life in any particular, is a means of education. It is quite evident that numerous influences operate to form the character of every individual. It is doubtful if any experience, especially during the plastic period of an individual, is without its effect in some degree upon his life, his character, ideals, modes of thought, standards of conduct, or some other process or feature entering into the warp and woof of the "sum total" of the man. Daily associations, comradeship—the neighbor's boys—are potent educational agencies. Sometimes the failure of an enterprise is caused by some circumstance which in itself is insignificant—a broken rail, a missent letter, a delayed telegram, tardiness in keeping an appointment. The fortune of battle has often been turned by some apparently trivial incident.

Many a boy has had his slumbering spirit awakened by an oration or a sermon, and through its influence caused to begin a new career and a more significant life. The silent influence of a picture placed where it could be seen by a child from day to day has often produced a transformation in its disposition.

All experiences and associations are educational agencies.

Mechanism of experience - ED + exper

Silent influences.

Society recognizes as educational agencies monuments which in the language of the sculptor commemorate achievements of statecraft or deeds of heroism. Hence they are placed in public parks and other frequented places not so much for the purpose of honoring the dead as for their beneficial effect on the living.

Newspapers, magazines, public libraries, lectures, chautauquas, lyceum courses, all forms of social and commercial intercourse, are now regarded as important factors in education.

Hand
All forms of occupation, all places of business afford instruction, supply knowledge, experience, and training. Mercantile establishments furnish abundant opportunity for learning human nature of engendering habits of courtesy, diplomacy, self restraint, and punctuality. All are phases of education.

Lodges, clubs, orders, and societies of various kinds are means of intellectual and moral uplift. Sports, games, and plays, by affording relaxation and invigoration, cultivation of the social instincts, by teaching the necessity of quick decision and action, and above all, co-operation, are educational factors, the importance of which is just beginning to receive recognition.

The chief educational agencies.

The chief agencies in education, as stated by Prof. H. H. Horne in the opening sentence of his work on "Philosophy of Education", are the home, the school, the vocation, the state, and the church.

The Home.—Of these agencies the home is first in time. Among primitive people, and in new and

sparsely settled communities, the home is the only educational agency, as well as the only industrial workshop. The home is the basis of civilization. The family is the simplest social structure. It is the most important as well as the most ancient of human institutions. All other institutions are products of the family. Whatever strikes at the home attacks civilization. Dependence must be placed chiefly upon the home for the transmission of the spiritual inheritance of the race, its ideals, its standards of conduct, its conceptions of religion and of the significance of life and its obligations. It is in the home that the child learns to obey, to respect authority, and to recognize the rights of others. If the child fails to acquire in the home the human graces, he has little chance of acquiring them from other institutions.

The family
is the unit
in civiliza-
tion

It is in the home that the child must acquire materials for the foundation upon which all other institutions must build the man. The strength of the superstructure is dependent upon the solidity of the foundation.

In the home
the child
must acquire
the founda-
tion of
education.

Civilization must trust to home training for stereotyping habits and for weaving the tissues of character. The importance of the home in education can be realized, when we reflect that the child passes there the plastic period of his life. The child that leaves home with misconceptions of life, with perverted mental vision, seldom recovers from his misfortune. Moral obliquity is very often traceable to defective home training. In after life one may fancy that he has outgrown the effects of home dereliction, but in time of danger,

Importance
of home
training.

temptation, or unusual and unexpected stresses, the lack of wise direction during childhood is made manifest. The young man who takes from his home no hallowed memories, no convictions, no indomitable purpose, is poorly equipped for life, irrespective of his accomplishments in school or college.

In his "Principles of Education", Prof. Bolton says: "The ideals which dominate life and character, and give them significance, owe more to home influences than to all others combined."

The child
can be
studied best
in the home.

The teacher could profit by the study of the child at home. It is there his nature can best be understood. The naturalist should go to the jungle, and not to the zoological garden, the botanist to the hill and the meadow, and not to the greenhouse, for the best information.

In the home the child is himself. The home is not a place where the child mostly listens, but where all the senses are alert and clamorous for expression. There, all the work is spontaneous. In the home there is a direct motive behind every activity. There, the child is eager to act, and he acts naturally, in his own way, and in his own time. He is ready to help his brother with his task, and is not afraid of reprimand for doing it. There he works without concern as to marks, grades, credits, or symbols of any kind on a periodical report card. He does things because of his gratification in acquiring skill in their accomplishment. Artificiality in home processes is altogether lacking.

The family fireside is the council chamber of

civilization. In it is represented the alertness, the confidence, the candor, and the optimism of childhood, the patience, the affection, and the solicitude of parentage. In its archives are kept the traditions and the aspirations of the race. In its dicta are found the fundamental doctrines of civilization.

Traditions preserved by the home.

The home should provide such means of culture and inspiration as are afforded by the best in books and music, such recreation and amusement that the attraction would be towards, and not away from, the family assembly. The child should not be forced to the street for companionship, or to public places for entertainment.

When the state assumes the responsibility of offering opportunity for education to all citizens, of selecting the teacher, and of prescribing the course of study, there is danger that the home may relax its efforts and disclaim its responsibility. Such a possible catastrophe should be averted. There is now no considerable opposition anywhere to the doctrine of the state's duty and responsibility in the education of the young, but in any scheme of popular education the home should be regarded as an important factor.

The home should not relax its efforts in education.

The School.—The primary purpose of the school is to educate the young. The general aims of education have been already discussed. The institutions and conditions that educate in an incidental manner may be called *informal* agencies, and those organized or maintained expressly for educational purposes may be called *formal* agencies. In the former class may be placed the vocations,

Formal and informal agencies distinguished.

clubs, societies, associations, etc. The principal agency of the latter class is the school.

Informal education is irregular, incidental, unsystematic. Formal education is organized, methodical and definite in its aims. It is the province of the school to provide proper environment instead of depending upon chance or accidental experience, to co-ordinate all the best processes of education, to apply principles rather than devices and, in the formation of its plans and its methods, to look to the future rather than to the immediate present.

The school must provide that which the home and the other agencies are unable to furnish. Wherever there exists a deficiency, the school must supply the necessary supplementation. Neither the home nor the workshop is able in a complex civilization to meet the needs of the child and its development as adequately as it does in a less developed state of society. To satisfy these urgent needs a specially organized institution is indispensable, an institution whose grasp includes all the elements of education, and whose horizon comprehends all phases of society.

The Vocation.—The fundamental principle of the vocation as an educational agency is the interdependence and necessary co-operation of all men in their several vocations. Skill is rendered possible by division of labor, allowing a specialization in particular lines of endeavor, thus securing expert and efficient service of numerous kinds.

The State.—The state as an educational agency protects man in the choice and use of his environ-

The school must supplement informal education.

The duty of the State.

ments, in the advantages gained through his own experience, in guaranteeing him liberty in the practice of his vocation and in the enjoyment of the returns of his productivity. It is the province of the state to protect the home and the vocation, to organize and maintain schools, and to guarantee to the church unrestricted liberty in the exercise of its prerogatives.

The Church.—The home deals primarily with the relations of father to son, brother to brother, child to mother; the school primarily with the relations of man to man; the church primarily with the relation of creature to Creator. The constant aim of the church is to bring man into a knowledge of his spiritual inheritance, to win him away from the sordid and unclean, and to fix his affections upon the devout and righteous.

The basic ideas of the church are love and mercy. Its ideals are wholly unselfish. It seeks to bring its standards of conduct and its conceptions of life to every one, regardless of station, condition, race or nationality. Its doctrines are founded upon the fatherhood of God and the brotherhood of man. To the processes of human reasoning by which man discovers the laws governing the forces of nature, it adds faith, the belief in God and spiritual influences that are not comprehensible by the application of ordinary inductive and deductive processes.

The church sends its missionary to all mankind. He goes without arms; without civil authority; without equipment; with only a motive and a message. Where all the resources of science, litera-

Funda-
mentals of
education by
the Church.

ture, and commerce fail, he succeeds. He penetrates the fastnesses of ignorance and superstition, and brings a simple yet mysterious message to people whose souls have been made fierce by centuries of heredity from savage ancestors, and transforms their character. In his wake schools spring up, home and family are created, and a barbarous race, cruel in all its instincts and habits, with crudest jargon for language, is civilized, is given a written language and a literature, and the capacity for its enjoyment.

**Remarkable
achievements of the
missionary.**

CHAPTER IV

THE SCHOOL

The school is the natural outgrowth of the principle of division of labor. Primitive man discovered early that economy and efficiency result from specialization. Just as it was found economical for one man in the community or the tribe to make shoes for all, and to receive for his work such commodities as he needed and the rest could supply, so was it found preferable for one to teach the children of all, while the rest supplied his wants.

Effectiveness
of speciali-
zation

Thus teaching as a business originated in the same way as shoemaking and other trades and professions. Because the work of the unskilful and unintelligent teacher causes a more widespread and permanent injury than that of the unskilful shoemaker or blacksmith, society as a whole—the state—is gradually assuming more and more the direction of education and the cost of its maintenance. One suffers no permanent injury from all fitting shoes. Only the individual that wears them feels the inconvenience of unshapely garments; but the evil effects of poor teaching are felt by society, by state, and by posterity.

Effects of
poor
teaching
permanent.

For a long time social intercourse within the family, the tribe, or the community was the first means of education, and it is still one of the most

history

The school the necessary out-growth of complexity of society.

important means. So long as society was quite simple, and there was little commerce or relation with remote people, education by this means was fairly satisfactory, but the increasing complexity of society rendered it necessary from time to time to provide more adequate means of formal education with special equipment and specially prepared teachers to direct it. The school has sought to keep pace with the progress of the race as expressed in other institutions, in commerce, manufactures, means of travel, and forms of government. It has not always led in this progress. Many of the reforms have been forced upon it. Teachers have often been compelled to yield to popular demand for revision of courses of study, changes in the plans and purposes for which they had not made sufficient preparation, and to which they were not enthusiastically committed.

The school has not always been the leader.

Advances in education have not always been as rapid as in other lines, yet there has been a constant and steady growth in the conceptions of what the school ought to do for the child. The chief aim of the school is to make a physically, mentally, and spiritually, strong individual, an efficient and capable workman, a patriotic and progressive citizen. Since these qualities and characteristics have had widely different meanings in different generations, it has followed that ideals, means, and appliances of the school have varied from generation to generation, and even from year to year. What was fairly adequate in the eighteenth century, is totally inadequate for the twentieth.

Progress always necessary

The school was first concerned in those things which through carelessness were neglected, or from necessity ignored in the home. The training, instruction, and course of study at first had no reference whatever to domestic or business life. It has taken several hundred years to get away from the doctrine of the ancients that to introduce into the school—into education—any matter that could be used in the home, the workshop, the farm or the market, belittled education and rendered it common. The old idea was that education is a privilege, and not a right; that it is for the leisure class, and not for the laboring class; for the patrician, and not the plebeian. It was asserted that the useful and the practical, those things that pertain to the vocation, except that of the so-called learned professions, should be learned in the home, on the street, and in the apprentice shop, and not in the school.

The ancients regarded education as a privilege for special classes of citizens.

The school has changed in order to meet the tremendous social changes that have taken place within the memory of even the present generation.

Modern education is for all; for the common man as well as for the patrician, for the busy and the lesiure man, the professional man and the mechanic, the rich and the poor.

Education is now regarded as a right of all classes of citizens.

The most important and far reaching change that characterizes the schools of the present time—the controlling and overshadowing change, is the industrial one. The applications of science resulting in numerous inventions for utilizing the forces of nature—wind, water, steam, electricity, chemical affinity, etc., the improved processes of

manufacture, of preparation and conservation of food stuffs, the creation of new commodities, the utilization of by-products that were formerly regarded as waste, the opening of world-wide markets, the rapid means of travel, communication and distribution of products—all have exerted a prodigious influence upon the ideals, means, and processes of the school, which has been made to feel that it should prepare the child to adapt itself to changed conditions.

A broader standard for the measurement of man has resulted from these social changes. There is a crying need for efficient men in so many lines of endeavor, for skilled workmen in so many occupations, that the school has been required to fashion its instruction and alter its methods to comply with these demands.

The measurement of man's worth is determined by a changed standard. The question, "What does he know?" has been changed to "What does he know, what can he do, and what kind of man is he?" The world demands knowledge, skill, and character; knowledge of useful things, skill in the performance of important acts, character that shows itself in influence, habits and ideals. At no other time in the history of man has there been so great a premium on versatile and accurate knowledge, efficient and rapid service, and character that is dependable and reliable.

Professor Dewey has said, "One can hardly believe that there has been a revolution in all history so rapid, so extensive, so complete. * * *

Even our moral and religious ideas and interests,

The greatest change of recent years is the industrial demands of education.

Need of efficient men.

Standards for measuring the worth of the man.

Revolution in all departments of life.

the most conservative, because the deepest-lying things in our nature, are profoundly affected."

Not only what may affect the child in after life, but what affects him while in the school, has received the best attention of scientists. His comfort, his health, and his happiness, have received painstaking consideration. The questions of school architecture, heating, ventilation, lighting, seating, and sanitation have been studied by specialists. Questions of causes of disease, contagion, and infection have been settled in the laboratory of the bacteriologist, and the conclusions there reached made public property for the benefit of the child.

Practical subjects introduced into the curriculum.

Some changes in school standards have resulted in adding to the curriculum manual training, domestic science, the study of plants, birds, animals, insects, soils, with apparatus for play grounds, laboratories, workshops, and school gardens, bringing a new interest to school life and a fuller meaning to elementary education.

Physical education has displaced "calisthenics", and has been made to apply to the whole nurture of the child, including his games, his dress, his food, and the intelligent use of the bathroom and the toothbrush.

Physical training recognized as a proper subject.

CHAPTER V

PHYSICAL CONDITIONS OF THE SCHOOL

Broader views of life, in its manifold activities, have wrought a change in the physical conditions of the school. More attention is being given to sites, grounds, buildings, furniture, apparatus, hygiene, and sanitation.

Important to have school site large enough.

The Site.—The selection of a school site is a matter of importance. The mistake has been frequently made of providing too small a site, resulting in increased cost when enlargement became necessary. In 1913, a city of Texas paid \$250,000 for a high school site that ten years before could have been bought for \$10,000. In 1911, the question as to whether the University of Nebraska should abandon its site in the City of Lincoln, and remove to a tract of land two miles away from the city, or should enlarge its present campus by the purchase of adjoining property, was left to popular vote. The decision was to acquire additional grounds in the city. The University then purchased, at a cost of \$300,000 to the state, six blocks of city property that could have been secured when the University was founded for \$3,000 to \$6,000. Rural communities make similar mistakes, building the schools on plots of ground entirely too small for school purposes, failing to provide facilities for playground activities.

Forethought in selecting site avoids future expense.

In selecting a site, several features should be considered. The school should be located on high ground that is naturally dry and easily drained. It should be away from objectionable noises of the street, the shop, or manufactory, and away from unsanitary surroundings. In cities the site should be ample for playgrounds, walks, flowers, shrubbery, and, when at all possible, a school garden. In rural communities at least one acre, and preferably four or five acres, should be secured. For a small school of not more than twenty to thirty pupils, the minimum should be half an acre, but provision should be made for possible increase in the number of pupils; hence at least an acre for a rural school should be insisted upon. It is a great mistake to abridge the freedom of the children during their hours of recreation on a small and undeveloped plot of ground.

Features to be considered in selecting a school site.

The Grounds.—The grounds for any school, in addition to abundant room for physical activities, should have also enough reserved for purely ornamental purposes. That part devoted to games should be made available for the purpose. It should be well graded, made smooth; all stumps, and stones removed, and necessary appliances for games of ball, tennis, etc., provided. Play is now conceded to be one of the important agencies in education. All the grounds should be made attractive. Small expenditure of money for material and for the direction of the pupils in cultivation is most wisely spent. Valuable information concerning plant life is thus given, and in no other way may such profitable work be done in cultivat-

Grounds should be tastefully arranged.

ing the æsthetic at so little outlay of time and money. What is learned at school about beautification of premises will soon be reflected in the homes of the children, and if the results are not immediately evident, the next generation will reap the reward.

Grounds should not be abandoned during vacation.

The short term of the rural school, the utter abandonment of the property when the buildings and grounds are used only for the purposes of instruction, and the frequent changes of teachers and school boards, operate harmfully against improvement and preservation of the grounds and buildings.

The teacher, though his stay in a neighborhood be short, can do an important work in awakening in the community a pride in the school property, and an interest sufficient to secure the employment of some one as keeper of the premises during vacation.

In the country a mistake is frequently made in locating the school too remote from a dwelling. Such a location invites trespass and vandalism.

Community pride in site and grounds.

A well aroused community pride in the school premises would have a wholesome effect in doing away with the unglazed, unpainted house, amid rough, uneven, treeless, barren, cheerless grounds, cramped in an isolated corner of the roadside, "like a ragged beggar sunning."

Definite plans for buildings advisable.

The Buildings.—The present ideal school building is simple and expressive of the serious but hopeful purpose for which it exists. Sometimes good taste is violated both in buildings and grounds by over-ornamentation from the use of

too elaborate design, by lack of harmony in color schemes. The fee paid a competent architect to plan the school building is money well invested. Several universities and normal schools have given special attention to problems relating to the construction and equipment of school buildings, and they are glad to render to communities gratuitous service on request.

Plans procurable without cost from institutions.

The Department of Education in each of several states is rendering valuable service to the state in furnishing without charge plans and specifications applicable to any desired expenditure.

State Departments of Education furnish plans.

Urban communities have within the last quarter of a century made great improvement in their school buildings. Quite frequently now the school house is the most attractive and pretentious building in the town. Rural communities are, as a rule, still behind in this particular; but in some sections, however, an awakening interest is manifest, the results of intelligent interest and effort, becoming more and more patent. In many places yet, however, the type of the "old red school house" with "four walls, a roof, and a floor", still abides.

Expert thought has been directed to the size, shape and general plan of the school-room. It is commonly agreed that in cities, where floor space is expensive, a room 28 by 32 feet is a convenient and appropriate size, and that the minimum height (from floor to ceiling) is 13 feet for the first story and 12 feet for the second. Such a room would afford seating space for fifty pupils, with allowance for necessary vacant spaces, and furnish 200 cubic feet of air for each pupil, an

Proper size and form for class rooms.

Amount of fresh air needed for each pupil.

amount which is considered sufficient under normal conditions of ventilation.

Better acoustic properties are secured by having a rectangular room, whose sides are in the ratio of 5 to 6. Cramped quarters either on the playground or in the school-room, are detrimental to health, good order, and good work. While it is needless to advise against making the school-room too large, enough space is all that is desirable, especially in cold weather, as the larger the room, the less easily it is heated.

Position of
blackboards
and proper
kind.

Blackboards should be placed on all wall space in the school-room unoccupied by doors and windows. Natural slate is the best kind of board and, considered as to durability, the cheapest in the end. But there are some excellent substitutes for the natural slate. A good article of what is known as *slated cloth*, if properly fastened to a perfectly smooth wall, makes a fine writing surface for several terms. Blackboards should be $3\frac{1}{2}$ to 4 feet in width. For pupils in the primary grades it should be placed 2 feet or $2\frac{1}{2}$ feet from the floor; for pupils in the high school 3 feet to $3\frac{1}{2}$ feet from the floor. The boards should at all times present a smooth surface, well cemented at joints, and of uniform color. Boards other than natural slate should be repaired, repainted, or removed promptly when they become rough or discolored. Black is in strongest contrast to the crayon work, and is, therefore, preferable, although dark green is preferred by some; its restful effect on the eyes, in their opinion, more than offsetting the disadvantage of its color. Chalk

troughs should be placed just beneath the boards, and should have a hinged wire covering, so that students using the boards do not disturb the accumulated dust.

Light.—All authorities agree that the arrangement of the seats should bring the light from the left side and the rear. This arrangement avoids the shadow of the hand, as the pupil sits with the right side to the desk. The more completely the left side of the room is filled with glass, the better, the windows extending from within three feet of the floor to the top of the room. The amount of light admitted into the room should be regulated by shades of a greenish tint. The shades should be adjustable, that is, so they may be lowered from the top or raised from the bottom. Shades that can be raised only from the bottom render it difficult to lower the upper sash of the window for ventilation.

Direction
of light
into the
schoolroom.

Furniture.—The best furniture is the single adjustable desk and chair. Single desks are to be preferred to double desks for both hygienic and disciplinary reasons. Both the desk and the chair should be adjusted to suit the individual child. When adjustable furniture is used, the adjustment should be made properly. Definite directions are usually furnished by the manufacturer.

Kind of
furniture
most
suitable.

In case adjustable furniture is not provided, three sizes of desks should be used, those for the smaller children being placed in front.

Every school building should be provided with cloak-rooms, and care should be taken that they are well lighted and ventilated. Each child should

have a separate locker, with shelves for lunch baskets, rubbers, and other objects.

Problems
of heating
and
ventilation.

Heating and Ventilation.—One of the most important problems of the school is that of heating and ventilation. Until recent years, comparatively little attention was paid to the problem, especially as it relates to school houses. Lately, however, it has engaged expert attention and investigation. Now, scarcely any municipality permits the construction of a school building or other public meeting place without compliance with the specifications of some one of several modern systems.

Correct
temperature
for the
schoolroom.

Proper ventilation requires that fresh air be brought in from without, heated to the proper temperature (64 deg. to 70 deg. Fahrenheit), and distributed throughout the room, and the vitiated air removed. There must be separate vents both for fresh air and foul air in each room. There are several adequate systems now in use in different cities of the country, but their discussion would require so much technical detail that it is not here attempted.

The
jacketed
stove.

One of the simplest systems, now gaining in popularity on account of its applicability to small schools, is that of the "jacketed stove". The stove is enclosed with an iron "jacket" six feet high, extending from the floor, and leaving a distance of two feet between the jacket and the stove. A conduit or vent for fresh air leads from the outside to a point beneath the stove, admitting fresh air which, being heated, rises to the ceiling and thence distributes itself throughout the room. On the

opposite side of the room is a ventilating duct, connecting with the flue from the stove, through which the vitiated air is discharged.

CHAPTER VI

THE FUNCTIONS OF THE SCHOOL

**Specific
aim of
education.**

The school is established primarily for the child. Its chief function is the education of the young. All the specific aims of education may be roughly classified under the three heads of physical, intellectual, and spiritual education. Again, the main object of intellectual education (as stated in a preceding chapter) may be said to consist of acquiring knowledge, power, and skill.

These aims exert a determining influence upon the organization of courses of study, methods of instruction, and modes of government.

Knowledge.

Acquisition of Knowledge.—Knowledge, it should be remembered, does not consist of the mere accumulation of masses of unrelated facts, for many facts are, in themselves, utterly worthless. Knowledge, so far as it constitutes one of the purposes of instruction, consists of vital facts and experiences connected by logical relations, so classified, arranged and organized that they become means for the acquisition of additional knowledge, or of direction in the discharge of duties and responsibilities.

**Valuable
knowledge.**

Not all knowledge, once acquired, is permanently retained, at least in a form that is serviceable. Much that we learn is unavoidably forgotten. Therefore, if knowledge were the chief goal of

instruction, much of the time consumed in its acquisition is wasted. But if, in the acquisition of knowledge, one has developed a love for the right kind of facts, and has learned to organize these into forms rendering them serviceable to the life of the individual and to society, the time is not wasted.

Gaining Power.—Knowledge may be the recollection of how a certain problem or how a certain class of problems was solved, but the ability to solve new and unusual problems, as they present themselves, implies training and discipline. This is power. Power.

The same problem, unchanged and unmodified, seldom presents itself twice in a life-time, therefore, one who would depend upon memory, that is upon facts, alone, would often meet confusion and defeat.

Attainment of Skill.—Skill implies intelligent practice. It involves experience obtained under competent and watchful direction, training under expert supervision. Skill means accuracy, rapidity, and proficiency. Skill.

Character.—The supreme end of all instruction is character. In its broadest sense, character includes knowledge, power and skill, but it is more concerned in what the child is trained to *be* than what it is taught to *know* or drilled to *do*. Character includes habit, but it relies for its fuller meaning upon such qualities as probity, integrity, purity, and incorruptibility. Character is the final test of the worth of the processes of the school. Character
the final
test of
the worth
of the
school.
It is the court of last resort by which the claims

of the school upon popular approval must be decided.

The fact that many who have passed regularly through the grades of the common school, the high school, and have finally received a degree from the university, have failed when submitted to the supreme test, has been cited as proof that our schools are not faithful to their trust. Indictments of modern education are common. A distinguished educator a few years ago said, "We all know that the children of the last two decades have not been educated. With all our training, we have trained nobody. With all our instructing we have instructed nobody".

Now, indictments against customs, and institutions are nearly always purposely exaggerated, for the reason that public attention is attracted by harsh and startling expressions. Robbed of extravagance, and reduced to commonplace language, the arraignment would mean that the efficiency of our schools has not of late years justified the amount spent upon them. It must be admitted that many people feel that the schools of the present time are failing to meet the demands upon them; that in all their progress they have not increased in efficiency as rapidly as other institutions; and that the processes of modern education, compared with new methods of travel, manufacture, practice of medicine, printing, photography, and many other vocations, fail to measure up to the average standard of improvement.

Hardly any student of education would seriously assert that the schools of to-day are less

Progress
of schools
less than
in other
activities.

efficient than those of the past. What is meant, then, by these complaints is that our schools have grown *relatively* less efficient, when the increased demands of the present time are taken into consideration. The present system of education would have met the demands of any previous decade better than the system of that decade met them, but their efficiency has not increased in proportion to the increase of their responsibility.

Inefficiency of the school is only relative.

In considering this question, it should be noted that much of the work heretofore performed by other institutions has been unloaded upon the schools. Parental authority is admitted by all to have relaxed. The home has well nigh transferred its responsibility for the entire education of the child to the school. The apprentice shop is closed. Various specialized types of education, the vocational and the industrial, with their new problems, have but recently presented themselves. Congested centers of population have developed new educational needs, as playgrounds, gymnasiums, and school gardens.

The school now does much that formerly was undertaken by informal agencies.

Of all institutions upon which the race is dependent for education—either formal or informal—it is the school that must undertake what the others leave undone; must attempt what the others are either unwilling or unable to perform. In this time of radical social and commercial changes, and of intense industrialism, when scarcely a week passes that some process or some instrumentality in manufacture does not become antiquated and ideals of living obsolete, the real advances made by the school, in its attempt to

maintain its stability amid the tempests, and to save the best from the wreckage, are slow to be recognized and acknowledged.

Education
does not
terminate
with the
child.

Earnest students of education are now agreed that the responsibility of the school to society or the state does not terminate with the child. The changes in social and economic conditions, varying almost with each new moon, find the young man who has left school at twenty-one, fairly well prepared for the demands of that time, unprepared for the conditions that confront him at thirty-five. It is true that social intercourse, the daily press, the public library, the court room, the pulpit, and other informal educational agencies contribute much to the enlightenment of the public, but these institutions are not dependable for the continuous education of the individual.

A physician whose patronage had nearly deserted him, in consequence of his professional inertia, was asked why he did not attend occasionally some medical school, in order to keep abreast of the times, when he replied: "Why, I haven't 'practiced up' what I learned in college yet." This doctor has not discovered that many of the theories and remedies that he learned in college have long since been abandoned by well informed physicians, and are no longer "practiced" at all. It is now universally recognized that the lawyer, the physician, the teacher, or other professional man, must continue his studies as long as he practices.

The social
center
movement.

Continuous Education.—There is a widespread demand that the school assume the responsibility

of *continuous* education of the individuals of all classes and all ages. This demand cannot be ignored. The task involves the affiliation, correlation and direction of all informal educational agencies of the community. It must bring together for mutual helpfulness individuals of all ages, creeds, and vocations, and secure the organized and sympathetic co-operation of all forces of the community. This new movement is already accomplishing much good in many places. It makes the school house a social center.

Socially and religiously, men divide themselves into groups. In doing this they are seeking social intercourse and co-operation. The church adds social opportunities to its spiritual work, but the church house of one sect can not be used as a meeting place for the community. Denominational lines are more or less closely drawn, and the church building is not the property of the community. The same may be said of the meeting places of the lodges, clubs, societies, and fraternities. Their rooms do not belong to the general public, and their aims do not appeal alike to all the people. The school draws no lines that exclude. The building is the property of the community, and is, therefore, the logical meeting place of all the people engaged in a common purpose.

The extension work now prosecuted by many of the institutions of higher education is an effort to bring the advantages of education, or at least its modern ideals to the people at large, to effect a mutual understanding for the benefit, both of the people and the institution. The faculties of

**The school house—
the logical
place for
the social
center.**

**The
extension
work.**

educational institutions need to understand the conditions in the country, the point of view of their supporters, the needs of their constituencies, so that the aims of the institution may be better adjusted to the solution of the problems, both social and educational, as they are found by actual contact with the people.

What is expedient for the university in its relation to the people of the state is profitable to the school in its relation to the citizens of the community. A full discussion of the different phases of the social center can not be here undertaken, but some of its purposes and its opportunities should have brief mention.

It is believed by many that the movement to bring into closer relations for purposes of universal improvement all classes of citizens can be made to exert a tremendous influence upon general and continuous education. The lawyers have their bar associations, physicians their clinics, teachers their institutes, farmers their congresses, bankers, merchants—all vocations—have regular conferences, each organized and conducted for the education of a particular class. The topics of discussion in these conventions are largely special and technical. The valuable work done in this manner needs the supplementation of a general conference in each community where the subjects of discussion appeal to all classes. Periodical conferences unify all community interests, beget a better understanding among the teachers, parents, business and professional men, cultivate community pride, lead to the construction of bet-

**Community
co-operation
necessary.**

ter school buildings, better dwellings, and better roads, provide wholesome entertainment in rural districts, and make the school house serviceable during the entire year.

It provides a meeting place for the old and the young, where questions of vital and common interest are studied with definite purpose—principles of hygiene, sanitation, music, art, literature, agriculture, horticulture—anything and everything that pertains to education. It brings the school, its course of study, and its processes of education into closer relations with the home and all the other interests of the community, and secures harmonious action from discordant elements.

In this community work the teacher must be capable of planning, directing, and executing, but he must call to his assistance every interest and activity in the community. Beyond question the free, open and frequent discussion of community problems is the quickest way to secure their solution, and the surest way to enlist the interest of the entire citizenship. By no other means can a better understanding of community needs be obtained. Communities are backward in providing educational facilities because the necessity for their improvement has not been demonstrated. Teachers and "educational missionaries" often blunder grievously in their efforts to "arouse educational interest." It is not in good taste to accuse the parent of indifference to the welfare of the child because (in the language of the accuser) he gives more attention to methods of improving the breed of the hogs than to the proc-

**The work
of the
social center.**

**Communities
frequently
ignorant
of the
need of
improve-
ment of
conditions.**

**Parents
are not
indifferent
to the
welfare
of their
children.**

esses of cultivating the mind of the child. He invests in the hog because he has found that the investment pays. Convince him that investment in the school makes his child happier, wiser, and better, give him a practical demonstration that he can comprehend, and his purse is opened unstintingly. The average man, if he is niggardly in responding to the calls of the school, is so because of his distrust of it. He is not heedless of the future of the child; his apparent lack of interest is but the expression of his lack of confidence.

CHAPTER VII

THE COURSE OF STUDY

The real purpose of a course of study, its scope, and its content, are questions of more than ordinary moment. There are few other matters in which the teacher may so seriously blunder. Many mistakes made by the teacher may right themselves in process of time, but a blunder in planning the work by which he aims to build the character of the pupil is well nigh irreparable.

Every school should have a definite course of study, leading to a determinate goal, easily comprehended by the teacher and the pupil. Vague, hazy notions are always harmful.

Definite course of study necessary.

It is necessary that in every school, whether the elementary school or the university, there be a competent authority to direct the curriculum, to understand it in all its details, to know how to correlate its various parts, to co-ordinate each grade to those above and below, each class to the preceding and succeeding classes, or each department to all other departments, to guard the interest of the pupil, and to see that a "balanced mental ration" is provided.

Competent authority should direct the curriculum.

The teacher of any grade should have intimate acquaintance with the work of all the other grades; his own whereabouts in the entire procession should be a matter of unqualified certainty.

The grade teacher should have intimate knowledge of the plans of the entire school.

The teacher of English in the high school or the college should be familiar with the scope of work done in mathematics. The department of chemistry ought not to be ignorant of the efforts of the department of Latin, or out of sympathy with its ideals.

The curriculum should be changed only for good cause.

A course of study, once constructed, should not be changed by the whims and caprices of the teacher. Every course of study is as progressive as the civilization of the race, but modification of a rational course should be permitted only when alterations are in the line of progress. The injection of foreign matter, accidentally picked up by the teacher while attending a summer school, frequently mars the symmetry of a course, merely to gratify the vanity of a teacher who wishes to "practice up" what he has learned.

Factory methods not applicable to the school.

Still, factory methods are not applicable to the school. In factories, each operator is concerned only in his part of the work. Often, the craftsman, the most skilful in the performance of his specific task, the most artistic in finishing his piece of the machine, whose work makes the fewest misfits, and who has the fewest "discards", does not know to what purpose his piece is to be used. A few mechanics follow their pieces until they become a part of the complete machine, see them in their final setting, understand their relations to other pieces, and comprehend the mechanism as a whole. From this few are chosen managers, directors, and superintendents.

Piece work.

But in the factory the workman, no matter how skilful or intelligent, is not allowed to deviate

from the pattern assigned him. This pattern must be produced in minutest detail. Any change in the part from the pattern renders it unfit. Any change or improvement in the pattern requires corresponding changes in the pattern for all other parts, leading to the construction of a new type of machine. The intelligent workman, who looks beyond his piece, may suggest complete modification of the entire machine. When he does this, he is no longer a "piece man". The piece man is narrow in his sphere of work. His operations are mechanical. He is fettered, muzzled, suppressed.

The teacher should not be shackled by inflexible restrictions, and restrained within the narrow confines of piece work. While conforming to established plans and purposes of the course of study, he should not be deprived of the full play of his best energies and inspirations. The teacher in all positions should have a broad outlook and comprehensive insight into the whole school. Among pupils there are no two "pieces" alike, therefore, the teacher should be freed from the severe limitations imposed upon the artisan and, within reasonable limits, be allowed the free hand of the artist. As Dutton says, "The teacher must be quite unhampered, and the results he seeks must not be quantitative, but qualitative."

The teacher should be given opportunity for initiative.

In organizing a school system, adopting a course of study, selecting text books, grading the schools, classifying the pupils, determining the scope of work for each grade for the term and for the current month, there is always danger of mak-

Danger of making processes mechanical.

ing everything too mechanical, of making "piece men" of the teachers, of discouraging initiative, and suppressing individuality. The child is never a piece of a machine or a cog in a wheel. One of the justest criticisms of the school processes of today is that they are too mechanical—too mechanical in method, in discipline, in instruction, in testing results, and in the promotion of pupils.

Courses in the lower schools determined by the higher institutions.

The course of study in the common schools has always been a reflection of that of the higher institutions. Up to within the latter half of the last century the trend of all higher education was toward the preparation for the learned professions or for the pleasure and the polish of the leisure class. A *liberal* education was regarded as something appropriate to the *free*. The derivation of the word *liberal* (*liber, free*) indicates what the conception of education used to be. It was intended for those who were free from the necessity of earning a livelihood; for men of leisure; for a class to whom time was not valuable. The course of study was made to include only what was deemed suitable for polite society, for the drawing-rooms of the aristocracy.

Old view of liberal education.

The doctrine of formal discipline.

Doctrine of Formal Discipline.—The course of study was also dominated by the doctrine of *formal*, or *general, discipline*. The prevalent belief was that the effects of training are general, that is, whatever is gained by one organ is transmitted to the other organs; that the cultivation of one faculty results in the cultivation of all the faculties. Those not subscribing to the doctrine in its most rigorous claims, who regarded the mind not

as an entity, but as composed of separate and independent faculties, maintained that whatever develops a faculty of the mind in a particular situation makes that faculty more efficient in all situations; that the chief function of education is to gain strength, upon the theory that this strength could then be applied in any direction. For example, that the power gained in mastering mathematical problems or in construing a foreign language furnishes power for the solution of problems in physics and chemistry, and even for the more concrete problems of the home, the farm, or the market place.

The doctrine of general discipline, as advocated for centuries, is being abandoned. Careful investigations and experiments by competent psychologists seem to have demonstrated beyond controversy that there is no general power of the mind.

Doctrine of formal discipline being abandoned.

According to the doctrine of general discipline, the content of a course of study is of little importance. It matters little whether the knowledge acquired is retained, but the effort put forth and the training received in its pursuit develops the perception, the memory, the imagination, etc. To this class of psychologists education means simply power to think accurately, judge correctly, and reason logically. To them, facts, or knowledge of facts, are mere unimportant incidents, pebbles picked up in the real journey; a hypothetical educated man might be devoid of knowledge, having at his command the power to summon knowledge quickly whenever it is needed.

Ultra views concerning general discipline, car-

Individual aptitudes of the pupil should be recognized.

rying with them the contention that there is a general memory, a general judgment, etc., are no longer insisted upon, the prevailing theory being that what may cultivate a faculty in a particular line does not necessarily improve it along dissimilar lines. One long accustomed to memorizing "literary gems" finds little difficulty in committing them, though he may surprise the student of chemistry or mathematics by his inability to recall such common formulas as

$$\text{H}_2\text{S O}_4 \text{ and } \tan A = \frac{\sin A}{\cos A}$$

Different kinds of observers.

Neither is the habit of careful observation, which is a most valuable acquisition, transferable to all conditions. Of the guests at a social gathering, one will remember every piece of music performed, another every piece of decoration, another every sally of wit, while still another is unable to remember anything except the apparel of the guests, which is recalled in every detail of texture, color, style, and ornamentation.

A botanist and a geologist traveling together see entirely different objects, the attention of each being directed to (not attracted by) what his cultivated interest dictates.

The writer had once an acquaintance who was totally absorbed in music. An inheritance afforded him leisure for his piano. As he had never assumed the responsibility of a family he lived with his brother, a practical farmer. One afternoon the family cow—the only one kept at the farm-house, and which was seen by the musician every day—failed to come home at the usual

time, and he was requested to look for her along the road. In his search he met a neighbor boy, when the following dialogue ensued: "Have you seen anywhere a cow wearing a bell in the key of C?" "What color is the cow?" "I do not know if she have a color, but you can tell her by the tone of the bell". "I saw a big brindle cow down the road yonder, but I didn't notice whether she had a bell on or not".

There are various types of memory. Some people have excellent memories for faces, others for names. Some mathematicians can not easily recall numbers. Street addresses must be constantly written for them. It is a common experience with them that although they manipulate numbers every day, and have at their fingers' end numerous formulas of algebra, trigonometry, calculus, etc., the numbers they see or hear out of their usual place can not be recalled. They can not recall, after reading an account of a railroad accident, whether the number injured was 180 or 1,800, can not remember whether a farm contains 80 or 800 acres; whether the office address is Room 481 or 841.

Different types of memory.

In abandoning the old doctrine of general discipline we should not, as some have done, go to the other extreme, and disclaim any gain whatever from the pursuit of specific subjects, except the actual knowledge acquired in such pursuit. The student of physics learns that it is unsafe to base a conclusion or to formulate a theory upon one, or sometimes even a dozen, experiments. He acquires the conservative habit of thought that

The other extreme concerning formal discipline to be avoided.

prevents jumping at conclusions, a habit of thought which is afterwards serviceable to him as a juror, a judge, or a teacher. Doubtless, there would be fewer controversies concerning the aims of education, the transmissibility of characteristics, the principles and processes in education, if such habit were more general among those who write on these topics.

Most subjects of a course of study have many similar, even identical, elements and are, therefore, valuable for each other. A knowledge of the structure, the grammar, and the idioms of one language is a valuable asset in the study of other languages. While there are no general powers of memory, imagination, etc., there are habits of thought, processes of arriving at correct conclusions, ideals of excellence, powers of correlation and application acquired in the study of a subject that constitute the most valuable and durable parts of education.

Again, it is claimed that it makes not much difference *what* one studies in school, but it is important *how* one studies, and *with whom* one studies; that one forgets what he has studied, but he does not forget his teacher. Many have quoted the advice, "Do not elect a course of study, elect your teacher". Were these contentions literally true, the administration of the educational processes of a school would be a simple affair. All students could be required to take the same course. Only the responsibility of selecting the right kind of teachers would be weighty, and the construction of suitable buildings and obtaining proper

Useful habits acquired by proper study.

Much of the value of any schoolwork depends upon the manner of teaching.

equipments important. Smaller faculties would be required, fewer specialists would be necessary, and the cost of education would be materially decreased.

These statements, robbed of hyperbole, could be made to express the truth. That is, any subject may be butchered and its value destroyed by an unskilful teacher; any subject may be magnified and great good derived from it under a magnetic and inspiring teacher working under proper conditions. These considerations lead to these conclusions:

No subject should be placed in a curriculum simply for its disciplinary value.

The subject should be worth studying for itself.

It should have some vital relation to life.

None of the activities of life are planned or prosecuted simply for the sake of practice. Buildings are constructed because buildings are needed; railroads are built because they are necessary. Always the ends to be accomplished are the stimuli that incite to exertion.

The aim of the course of study in the elementary or high school should not be solely for preparation for entrance to the university. Hardly one per cent of the entire school population ever attain to what we call higher education; only five per cent to the grade of our high school. The high school at present is laboring under the handicap of having to be measured by two standards. The public at large demands of it to prepare its students for active and efficient participation in the affairs of life, the workshop, the counting house,

**Require-
ments for
entrance to
college or
university
not to
determine
the
curriculum.**

the bank, and the farm, while the higher institutions are measuring its efficiency by its ability to prepare students for entrance to their classes. That the effort is being made to satisfy both these widely different standards is a just criticism on the plan of our educational system. That the universities in various sections of the United States are rendering efficient and valuable service in standardizing the work of the secondary schools, and through them the work of the elementary schools, is recognized by every one. But in some sections of the country there is a growing feeling that the spirit of the university savors too much of domination, and that undue emphasis in the course of study of the other schools is being placed upon "university entrance requirements."

Two distinct standards attempted by high schools.

Classification of high schools often arbitrary and artificial.

The classification of high schools into groups, according to the number of "units of affiliation" with the university, has set up an arbitrary and artificial standard of measuring the efficiency of the high schools that is proving in many instances much more harmful than helpful. The dissatisfaction with the present system is further aggravated by the conviction that the public high schools are as much wards of the state as is the university, and are entitled to some consideration in all matters affecting education in the state. There is a feeling that it is unfair to the other schools for the university, although the acknowledged head of the educational system of the state, to prescribe terms of recognition to all others, without council, conference or consent. Professional courtesy sometimes operates against

needed reforms in entrance requirements and the recognition of the work of the high schools, the action of the committee on affiliation and recognition being often practically annulled by the unwillingness of some member of the faculty to admit a student to the freshman class or to advanced standing without his having had a certain specified *lettered* course in his department.

A far more helpful and harmonious system of affiliation and correlation among all the institutions of the state could be had by an educational commission, consisting of the State Superintendent of Education, representatives of each state educational institution, and of the public high schools, empowered to determine the actual standing that should be granted to a student going from one to another, the commission being vested with authority to make such changes, additions, and eliminations in the course of study in any or all of the institutions or schools as it deems necessary to insure perfect correlation.

Dr. Butler, president of Columbia University, says, "Happily, there are in the United States no artificial obstacles interposed between the college and the university. We make it very easy to pass from the one to the other; the custom is to accept any college degree for just what it means. We make it equally easy to pass from one grade or class to another, and from elementary school to secondary school, the presumption always being that the pupils are ready and competent to go forward. The barrier between secondary school and college is the only one that we insist upon retain-

A more satisfactory method for the correlation of all schools.

Easy to pass from the college to the university.

Difficult to pass from the high school to the college.

ing. The intending collegian alone is required to run the gauntlet of college professors and tutors, who, in utter ignorance of his character, training, and acquirements, bruise him for hours with such knotty questions as their fancy may suggest. In the interest of increased college attendance, not to mention that of a sounder educational theory, this practice ought to be stopped”.

Dr. Draper, Commissioner of Education of the State of New York, in his “American Education”, speaking of the work of the universities and other agencies, says: “It is developing a rather common belief in the crowd that a university which does little besides berate the lower schools about suitably training students for itself, is not doing overmuch for education”.

The creation of such a commission would harmonize all the public educational agencies of a state, suppress ill-feeling and end antagonism, tend to unite all the state educational agencies into a co-operative and sympathetic union, and make every citizen speak of them as “our schools”.

If neither the doctrine of general discipline, now repudiated, nor the preparation for entrance to college should determine the course of study for the common schools, what should determine it? Quoting again from Dr. Butler, “The first question that ought to be asked of any course of study is, ‘Does it lead to knowledge of our contemporary civilization?’ If not, it is neither efficient nor liberal”.

Almost every subject that has now, or has had for several decades, a place in the course of study

What
should
be in the
curricu-
lum

in our common schools, may lead to such knowledge if the methods of instruction are sane and the proper aims of education are kept constantly in view; but some additions may be profitably made, and some of the subjects need the elimination of much useless matter, and the vitalizing of the remainder. A beginning has already been made in the lower grades. The courses are being modified by the elimination of purely formal exercises like parsing and diagramming, spelling of unrelated and obsolete words, omission of the oddities, puzzles, and archaic problems in arithmetic, map questions in descriptive geography, dates of unimportant historical events, and by the substitution for them of interesting matter, as drawing, music, elementary science, literature and handiwork. Effort is being made in the best common schools everywhere to correlate the school life with that of the larger life of mankind, for developing the mind of the pupil in all directions, particularly towards the ideals of a socially efficient individual.

Changes
now made
in the cirri-
culum.

A socially efficient individual is not merely one who can create values himself—he must in addition be able to judge values of the products of others. All classes of producers are interdependent. Each uses the product or the services of the other. The man who is uncultured in his choice, incapable of discriminating between the worthy and the worthless in foodstuffs, clothing, newspapers, magazines, books, music, art, political service, is of no help to society in elevating morals, establishing correct standards of living,

The efficient
man.

or ridding society of inefficiency and corruption.

**Distinction
between
liberal and
vocational
education.**

Dr. Snedden, in his "Problems of Educational Readjustment", says, "Liberal education may be defined in various ways, but to the writer, the most serviceable definition is to be made by contrasting liberal with vocational education in the same way that production and consumption (or utilization) are contrasted in social and economic life. Vocational education is designed to make of a person an efficient producer; liberal education may be designed to make of him an effective consumer or user. The liberally educated man utilizes the products and services of many producers; but because of his education he uses them well.* * * He uses good literature rather than bad; he exacts from other producers expert rather than untrained service; in his contracts he puts a premium upon good taste, refinement, and right morality. * * * His utilization elevates himself and also the world because of his appreciation, his insight, his sympathy".

**Liberally
educated
man knows
how to esti-
mate the
worth of the
products of
others.**

Very few can become proficient in music or art, but many can be taught to appreciate and enjoy them. Very few can contribute to real literature, but many may be taught to appreciate it and contribute to the cultivation of a pure literary taste among their fellows. Hence, the chief reason for putting art, music and literature in courses of study is not to make artists, musicians, or authors, the percentage of whom must always remain comparatively small, but to render service to society by creating a critical, exacting and appreciative citizenship.

No author should attempt to designate the list of subjects that would make the *best* course of study. There is no best course for all conditions, localities, and situations. Local conditions, the qualification of the teachers, the dominant spirit of the times or the nation, the kind of equipment available, all are determining factors in the selection and arrangement of the subjects in a course of study.

**No BEST
course of
study.**

Educational writers have proposed many schemes of division of the topics to be considered in planning a course of study. Several authors have recently undertaken to put into a comprehensible form such schemes that have become, as it were, crystallized into accepted formulas, and it would unquestionably be more profitable to the student for the writer to present here for consideration the classification of some reputable authors than to undertake one of his own. The student will observe that while these "schemes" differ in detail to some extent in the point of view, there is substantial agreement as to the essentials of a course of study; the rudimentary principles of the subject included to be treated in the elementary schools.

**Different
schemes for
courses of
study pro-
posed.**

Dr. Butler, after defining education to be the gradual adjustment of the individual to the spiritual possessions of the race, says: "Those possessions may be variously classified, but they certainly are at least five-fold. The child is entitled to his scientific inheritance, to his literary inheritance, to his æsthetic inheritance, to his institutional inheritance, and to his religious inheritance.

**Dr. Butler's
scheme of
courses.**

Without them he can not become a truly educated or cultured man”.

**Views of
Dr. Harris.**

William T. Harris, formerly United States Commissioner of Education, says: “The studies of the school fall naturally into these five groups: First, mathematics and physics; second, biology, including chiefly the plant and the animal; third, literature and art; fourth, grammar and the technical and scientific study of language, leading to such branches as logic and psychology; fifth, history and the study of sociological, political and social institutions. Each one of these groups should be represented in the curriculum of the schools at all times by some topic suited to the age and previous training of the pupils”.

**Views of
Dr. De
Garmo.**

Professor De Garmo, of Cornell University, makes three great divisions of the content of the course of study, (1) the Natural Sciences, (2) the Humanities, (3) the Economic Sciences. These divisions are subdivided further, the first division including the exact sciences, the biological sciences, and the earth sciences; the second division including language, æsthetics, and history; the third division including economics, technology, manual training, etc.

A lengthy discussion of the arrangements and classifications quoted would be foreign to the purpose of this work. The student would find it profitable as well as interesting to consult the authors mentioned, who have treated the question of the course of study more fully than can be undertaken here.

The young teacher should also examine the

courses of study of various high schools and colleges, and endeavor to classify, in accordance with one or all of the three "schemes" cited above, the various subjects found in the courses published. The fields of knowledge have become so vast that no one mind can encompass them all. The domain of any one of its lowest divisions is so broad that the student must select a few from the great many divisions and subdivisions. "Electives" are now permitted in nearly, if not quite, all the colleges, and in most of the high schools of the country. But the young student should not be permitted to make a patchwork of his education. The courses pursued by any student should contain a minimum of each of the three great divisions of knowledge, the Humanities, including language, literature, history and art; the Natural Sciences, including mathematics, physics, chemistry, biology, etc., and the Economic Sciences, including agriculture, manual training, etc. The elections among the other divisions should have in view a definite end. The course of study should lead somewhere. The completion of any course should be a guarantee of some definite form of skill and culture.

The teacher should examine all schemes.

Each of the three great divisions of knowledge should be represented in a course of study.

The Elective System.—The wisdom of the elective system has been demonstrated in American colleges and universities. Within certain limits it has proved practicable in our high schools. The elective system permits the student to select a course of study, or allows the teacher to select one suitable to his capabilities and predilections. It recognizes the fact that there are great variations in accomplishment among different subjects by the

The elective system has grown in popular favor.

same individual. One may have an aptitude for natural science and poor mathematical ability. Another may be excellent in the languages, but have very little capacity for philosophy and therefore, no interest in any form of abstract reasoning.

But a little reflection will show that even in an institution in which no subjects are prescribed, in which the entire courses consist of "free electives", the actual number of electives for the student is comparatively small when the entire number of subjects offered is considered. The student finds upon entrance to a university, that he must make his elections conform to the schedule of recitations prepared for the term, and as he has probably decided upon his course before entering, he often finds a "conflict" in the schedule between two of his chosen subjects, and is forced to abandon one or the other. He may chafe in his disappointment at the failure of the faculty to make a schedule by which any student could elect any combination desired among subjects offered his class.

The number of different combinations possible for a student is limited—dependent upon the number of teachers for the class. Now, let us suppose that there are 12 subjects offered in the Freshman year, and there is a "free election" of 4. The number of different ways in which four subjects may be chosen out of 12 is (see any text in higher algebra)

$$\frac{12}{4} \frac{11}{3} \frac{10}{2} \frac{9}{1} \quad \text{or} \quad \frac{12 \times 11 \times 10 \times 9}{2 \times 3 \times 4} = 495.$$

Wide range
of electives
for the stu-
dent always
impossible.

That is, of 495 different students entering a class, to which is offered an election of 4 out of 12 subjects, each could choose a course different in some particular from all the others. The futility of permitting unlimited election, even when "free electives" are offered, is obvious.

Some schools permit a variety of choice by arranging several distinct groups of subjects, allowing each student to choose a course or group. The schedule of recitations for each class is prepared, so there is no conflict between two subjects of the same group. Under this plan, the student's election ceases, when he has chosen his group.

**Selection
among
courses or
groups of
subjects
practicable.**

CHAPTER VIII

THE CHARACTER, QUALIFICATIONS, AND REWARD OF THE TEACHER

When one speaks of a physician or a lawyer, he means one who has entered with purpose into the study and the practice of medicine or law, making it his chief business in life. When one speaks of a teacher, he usually means simply one who is engaged at the time in teaching.

This distinction is caused by the recognition of two facts:

Many enter
the ranks
of the
teacher
without
serious pur-
pose.

1. The demands of society expressed through statutory enactments for license to practice medicine or law have become so great that one will not devote to the acquisition of the purely technical information the necessary to prepare for the examination required for admission to the practice unless he purposes to remain in the profession, while the requirements for technical training for admission into the ranks of the teacher are comparatively few.

2. The young physician or young lawyer usually is forced to wait for an indefinite period for clientage and professional fees, while a young person with a teacher's certificate may find employment at once and receive a fairly remunerative price for his services.

The nominal requirements for certification of

teachers, the lack of a very definite conception by the public of what constitutes expert service as a teacher, admits year by year into the school-room many young men and women who have no fixed aim in life, but who must secure in some way a livelihood while casting about and prospecting among the other callings for a permanent vocation. To those loiterers by the way, the motives that characterize the true teacher do not appeal. This class of sojourners is not in our mind when we discuss the qualifications of the teacher.

Character an Essential Qualification of the Teacher.—However numerous may be the elements that enter into the efficiency of the school as an educational agency, its real worth is most dependent upon the character and qualifications of the teacher. If his conception of the aims of education is false, if his ideals of life are low, if he is weak in character, in initiative and in personality, unsafe in counsel, untrustworthy or unreliable anywhere, his shortcomings react on the school to its injury. The qualifications of the teacher, therefore, are pertinent to a discussion of education. The good teacher is characterized by the same qualities that belong to all good men and good women everywhere. It goes without saying that honesty, truthfulness, sincerity, and all other cardinal virtues are his essential attributes.

Society, in general, demands more of the teacher than it exacts of any one else, with the possible exception of the minister. The world is aware of the potency of close, constant association and daily

**Character
essential
to the
teacher.**

**The public
demands
the highest
character
of the
teacher.**

example, and since the child is in intimate relationship with the teacher during the plastic period of his life, the public demands of the teacher that he possess and that he practice those qualities that the child may profitably imitate. We are not seriously concerned in the habits of the merchant—content if his goods are dependable; nor in the private life of the grocer—satisfied if he sells us wholesome foods. We require of the banker only that he conduct his business honestly; but we demand of the teacher that his speech, his dress, his manners, his financial dealings be beyond adverse criticism; that in morals he be upright, exemplary, clean and above reproach.

Scholarship of the Teacher.—Scholarship is essential to efficient teaching. Nothing is more patent than that one can not teach what he does not know. Schools frequently suffer from the employment of smatterers. The teacher needs exact and accurate knowledge of his subject. He needs to know its setting, its history, its application. He should be able to illustrate it from many directions. Meager knowledge is a perpetual source of trouble. Without scholarship the teacher is hampered for want of capital, however well he may be qualified in other respects. No good work can be done when tools are lacking. The teacher should know more than he is expected to teach. There seems to be now a concurrence of opinion that a teacher's minimum educational training should be four years in advance of that of his pupils.

The teacher of arithmetic should understand

Scholarship
necessary to
the teacher.

*More
Scholarship*

The teacher
should be
far in ad-
vance of
the pupil.

algebra; the teacher of grammar should know something of rhetoric. The efficiency of a teacher is enhanced by his acquaintance with all subjects related to those he teaches. The teacher of English should know some other language. Each language has its peculiar idioms and constructions, but there are many fundamental principles of all language that are general, and with these the teacher of any language ought to be conversant.

The teacher is never called upon to teach all he knows. There should always be a reserve force behind. Even though occasion never summons it to the front, its possession gives confidence and strength to the teaching. It is valuable in that it gives the teacher a feeling of assurance and self-reliance that begets ease and composure in the presence of his classes. No teacher can work up to the margin of his attainments. If he does, he is in constant peril of falling off. His feeling of insecurity when near the brink disconcerts him. His pupils realize his danger and watch to see him fall—sometimes they wilfully assist in the disaster.

The teacher must know more than he is required to teach.

For the really competent teacher many qualifications are essential, but there is no compensation for the lack of scholarship. The teacher is no longer supposed to know everything, but he is expected to know some things well. Familiarity with the topography of all sections of a state is expected of no one, but every one is supposed to know his own town, its location with reference to other towns, the most direct route to its market

Professional training necessary to the teacher.

and the connections of the railroads passing through it. The scholarship of the teacher should include not only academic, but professional training. The once prevalent doctrine that any one can teach anything he knows has been exploded. The teacher should understand the aims of the school, the purposes of study, the nature of mind, the processes of teaching; he should have very definite ideals of character and conduct. Scholarship demands continuous study. In all education there is no such word as "finished".

The teacher should continue to grow.

Growth of the Teacher.—Whenever a teacher ceases to grow he begins professionally to die. Therein is a striking analogy between the physical and the mental man. The body passes through the cycle of development and decay. It is the same with the mind, but with this great difference: the decline of the mental powers may be delayed and the mind kept strong, vigorous, and young as long as life lasts.

Opportunities for growth.

The teacher has many opportunities for growth. The processes of teaching others are a perpetual fountain of mental youth. Every recitation conducted, every lesson explained, every exercise corrected, every act well performed—each contributes to the teacher's growth. It is a poor teacher who learns less from a recitation than his class. Careful and conscientious discharge of every duty insures growth. It is only by doing our best that the best grows better until it becomes good.

Emerson says, "A man is relieved and gay when he has put his heart into his work and done his best; but what he has said or done otherwise

shall give him no peace. It is a deliverance that does not deliver. In the attempt his genius deserts him; no muse befriends, no invention, no hope”.

It is by doing his best in all situations, principal or subordinate, that man rises to eminence, proficiency, and respectability in his profession. Some never rise above mediocrity; they never grow; they remain professional dwarfs. Their ability may be great enough, but their efforts are weak. The world honors a growing man, a forward-looking man. It admires the climber, one who sees visions and raises himself toward their realization.

Means of growth.

The most valuable thing about experience is the opportunity it provides for growth. If the opportunity is not used, the experience counts for but little. Books, magazines, newspapers, all afford means of growth, but the mental food supplied by these and by all other agencies must be assimilated before they contribute to the growth of the teacher. Only the food that is digested makes flesh and blood.

The teacher must know how to study. Study is one of the fine arts. The printed page may mean much or it may mean little. Reading is not always studying. It may be purely mechanical. It may call into play only the feeblest manifestations of intelligence. Pictures, paintings, statuary, to be educational, must be studied. They must appeal to more than the sense of sight. He who only *hears* music loses its rapturous inspiration. Whoever reads a book or looks at a picture sees

only what there is in it for *him*. He may not see what the author saw, he may see only what was expressed or what was implied. But the master student gets more from a good book than the author puts into it. He gets also what the author felt but did not express. He who plants a flower garden is not necessarily its owner. It belongs only to him who can appreciate it. The gardener may have legal title to the soil and to the material parts—the stalks, the petals and the blossoms; but the real beauty is the property of him who can appropriate it.

**Methods of
growth.**

The careful study of a work of art, whether it be a piece of mechanism, architecture, or music, or of literature, is a means of growth. To learn the true meaning of such a work is a problem, and we grow by solving problems. We demand the pupil to solve problems. Our arithmetics are full of them; grammar has many; physics, chemistry, and other sciences are now taught almost wholly by presenting problems; Harvard University has adopted that method in the teaching of law. It would enliven the dry bones of history if the text books and the teachers would learn to substitute for records and narrations, some live, wide-awake, problems.

A poem may have one meaning for one student and a quite different meaning for another. They may both be right. We can not always interpret the thoughts of a writer. That it is not always necessary to do so is shown by an anecdote. It is told that a dispute once arose in a literary club

concerning the meaning of a line in one of Browning's poems. In order to settle the matter the disputants wrote Browning to know what he meant by the line in question. He replied that he had forgotten.

A mind grows from direct contact with other minds without the intervention of pen or pencil, brush or chisel. Thought always loses in clearness when reproduced on canvas or stone. There is a charm in observing life, action, motion. The flying clouds, the dashing torrent, the restless ocean appeal to our deepest recesses of feeling. Aeschines, exiled from Athens after his memorable contest with his rival and enemy Demosthenes, repeated to his class in oratory a part Demosthenes's famous oration, "On the Crown". When his listening pupils applauded, Aeschines exclaimed, "But you ought to have heard the brute himself speak it".

Living objects contribute to interest.

The progressive teacher is using the principle of growth when he visits the schools of other teachers, attends local and county teachers' institutes, state and national teachers' associations, and all other kinds of educational conventions or assemblies.

Associations as means of growth.

By visiting the best schools the teacher keeps in touch with the new phases of education, new methods of teaching. He learns of new equipment and appliances, and acquires a new interest in his own work by seeing others engaged in meeting the same demands and solving the same problems.

By mingling with teachers from different sections and engaging with them in the discussion of

educational questions he is renewed in spirit and strengthened in his grasp of the problems of education. By coming into touch with the leaders and master spirits in the profession, he broadens his horizon, gets out of the valley and upon the mountain top, where he has a better perspective.

First-hand knowledge most valuable.

Travel, visits to museums, libraries, great cities, and objects of national or historic interest contribute to the growth of the teacher. The knowledge thus gained of human achievement, of the flora and fauna of different countries, of lakes, mountains, waterfalls, is concrete, first hand, and, in many respects, more valuable than that gained by other means.

The teacher should identify himself with the community in which he teaches.

The teacher must grow socially. Of all vocations that of teaching demands most of the social graces. The recluse can not be a leader. The power of adapting one's self to conditions, of entering into the life of the community, of identifying one's self with his patronage is a factor in the success of a teacher that can hardly be over estimated. In cities where the teacher has little opportunity of meeting his patrons socially, his power is not widely felt; but in the country the opportunities for good through the social activities of the community are many, and the maximum of the teacher's efficiency is determined largely by his willingness and his ability to enter into the social life of the people. If he is regarded as "one of us" he can lead; if he is regarded as an alien he can neither lead nor successfully direct. The teacher who lives in the neighboring village or city and spends there all his time except

the five school days of the week can not secure the esteem and co-operation of his patronage. All protestations of interest on the part of the teacher who spends his entire leisure away from his community are discredited.

Personality of the Teacher.—Another element of a teacher's success is that enigmatical quality or endowment called *personality*. It is among the subtlest of subtle characteristics. It defies definition; it eludes description; it baffles identification. We are repelled or attracted by it; we combat it or we surrender to it. A positive personality, a winning manner, or a magnetic spirit, gives one an advantage to begin with. Whatever its elements are, whether innate or acquired, personality is not a fixed quantity. It is modified by all one has seen, heard, or felt. It may be called the product of all the influences of environment, effort, thought, emotions, possessions, and aspirations of the individual.

Personality
an important
factor.

The Attitude of the Teacher.—The teacher's attitude towards his vocation is an important element of his efficiency and of his happiness in the work. Above all else, the teacher must believe in his calling. His belief in its importance and its dignity must amount to more than interest, more than enthusiasm; it must attain to consecration. He should regard teaching as a profession and not a trade. Both the trade and the profession are honorable. The chief distinction between them is, the profession is guided by general fundamental principles and immutable laws, while the trade is governed by specific rules and directions which to

The teacher
must have
faith in his
calling.

Teaching,
a profes-
sion, not a
trade.

the workman may be quite arbitrary. Those directions may rest upon general principles, but the workman may have no acquaintance with them.

The architect must have a knowledge of several phases of mathematics, physics and other sciences. He is seldom called upon to duplicate a building or to use the same plans twice. The carpenter who uses the plans follows them according to the directions of the architect, often without any knowledge of the sciences upon which they are based.

The teacher must keep in sympathy with children.

The teacher must believe in teaching as the artist believes in art. It must be his pride, his delight, his life. He must not be a drudge in spirit or a slave in performance. He must keep in sympathy with the young, with their pleasures, their sports, and their aspirations. He must not be annoyed by their boisterousness, their mischief, or their prattle. Whoever has lost the pleasure of association with children has lost the spirit of the teacher. As has been previously stated, the teacher must love his subject, but his love for the subject should not eclipse his love for the pupil.

Three types of the teacher.

In my experience as a student I recall in this connection three teachers. The first (as I afterwards learned) had mastered the language of a few books. These he knew "by heart" by chapter, page, and paragraph. He did not need a book in hand to conduct the recitation in spelling, reading, geography, or arithmetic. The younger pupils wondered how one man could know so much as he. But looking back after many years I find that he did not reach *me* or touch me vitally

anywhere. He was a *book* teacher, and his aim was to make an exhibition of his accomplishments; or, if he had any other motive, it was to make scholars after his pattern, memorizers of books. **The book teacher.**

The second was of a higher order than the first. He knew no book "by heart". He had a contempt for any one that did. He had a library of works on his subject, but he was not bound by their teachings. He wrote books, himself. He contributed to the knowledge of his time. He knew his particular subject. It was his meat and drink. But looking back after many years, I find that he did not contribute much to my attainment of the elements of real education. He was a *subject* teacher, and his aim was to make chemists of his students, and to advance human knowledge in his subject, alone. **The subject teacher.**

The third was familiar with the text books he used, and skilled in the subject he taught, though he was neither wedded to the book nor enamored of the subject. But he understood and loved the *boy*. His sympathy was broad, his affection deep, and his hopes were high. And, looking back after all these years, I find that he was worth more to me, and to all the boys that came under the influence of his tender heart, his noble example, his glorious character, than all the books I ever learned and all chemical formulas I ever verified. He was a *human* teacher, and his aim was not to make scholars only, not to make mathematicians merely, but to make *men*. **The human teacher.**

The teacher blunders when he depends upon any one or more of the recognized qualifications for his

Futility of
dependence
upon any
one quali-
fication.

achievement. Character is indispensable, but the most unblemished character does not make up for lack of scholarship, judgment, common sense, executive ability, professional skill, tact and other essential qualities.

Neither must one place too exclusive dependence upon scholarship. Lack of other essentials are frequently emphasized by extensive learning. Sometimes one remains so long in school and becomes so immured in books and neglectful of the social side of life that he is trained away from, instead of towards, knowledge of, and sympathy with, the practical things of life, and is unfitted by attitude and experience for effective work. His energies have been exhausted, his sympathies atrophied, and his vision impaired. His condition recalls to mind the retort of an uncultured candidate to his opponent who chaffed him for his lack of education, and expatiated upon his own experience of years in college and the law school in preparing to serve the public capably, when the other replied, "My opponent reminds me of one of our old Georgia farms, poor by nature and worn out by cultivation".

The student may forget that there are many sides to a successful life. Some of the ablest specialists are valuable as contributors to human knowledge, but inefficient as teachers. They are lovers of subjects, disciples of science, devotees of metaphysics, when the schools need leaders of children and makers of men. Much learning has unbalanced them. They suffer from a kind of intellectual intoxication.

The teacher blunders when he trusts too much to native ability, unusual accomplishments, or striking personality, and attempts to substitute these for scholarship, industry, and the capacity for drudgery. Some of the poorest teachers are the most entertaining to a class, the most pleasing in expression, and the most fluent and elegant in speech. They fail in the critical test of the teacher, the ability to arouse the student to self-activity. Such teachers act as if classes were formed for the purpose of affording them opportunity for displaying their accomplishments. The glamor they throw around their subjects soon palls, the gloss soon wears off, and their pyrotechnics are soon extinguished, and nothing substantial remains.

Self activity the most necessary element in the education of the child.

Expert service comes with experience. It is useless to expect the best work from a novice, but long experience is no guarantee of efficiency. Experience may have crystallized into habits that violate every canon of scientific teaching. "The pure empiricist never can have any genuine experience", says Dr. Nicholas M. Butler, "any more than the animal, because he is unable to interrogate the phenomena that present themselves to him, and hence he is unable to understand them". The wrong kind of experience—experience not founded upon correct principles, keen insight, and competent direction—is to be feared. School boards need to qualify their requirements that applicants for positions must have had experience, and make careful inquiry into the nature of the experience offered as qualifications.

Experience not always a guarantee of efficiency.

The Value of a Teacher.—The true worth of a teacher in a community, a system of schools or in an institution depends upon many traits, some of which are not usually mentioned in a category of the teacher's qualifications. If a superintendent, a principal, or a president of a college is asked how he estimates the worth of a teacher, he begins to think of reliability, spirit, punctuality, willingness, loyalty, and other qualities, some of which are not readily definable. He places a high estimate upon the teacher who can be relied upon under all circumstances; upon one whose judgment is sound, whose influence is wholesome, and whose example is inspiring. He estimates the worth of a teacher by that degree of security that he feels in entrusting to him any undertaking or responsibility. He weighs him with reference to his fidelity to trust, his sincerity and his candor in all kinds of relations. Every one is afraid of a secretive, double-faced nature. Diogenes, asked which of the animals he regarded as the most dangerous, replied, "Of wild animals, the slanderer; of tame animals, the flatterer".

That teacher is valuable who recognizes that his duties and responsibilities do not terminate with the recitation, who realizes that the school has just claims upon his influence and example, upon his habits and conduct during the twenty-four hours of the day, the seven days of the week, and the twelve months of the year, and who is wise enough, and considerate enough, to make this influence and these habits such as redound to the good of the school.

How the value of a teacher is determined.

Valuable qualities of the teacher.

The teacher is valuable also when, in addition to other qualifications, he enters the class-room with a cheerful, hopeful, optimistic countenance that radiates good humor on every hand.

Loyalty does not meet the full requirements of the teacher.

No superintendent or other administrative officer could be expected to place a high value upon a teacher who would rejoice openly or secretly in the failure of his administration, and folly is hardly a term strong enough to characterize the conduct of such officer who would recommend the re-election of such teacher or acquiesce in his retention. But loyalty to the board, to the superintendent, to the principal, or to the president does not fill the measure of the teacher's worth to an institution. Every school has its ideals, its spirit, its traditions. These should not be carelessly ignored or spitefully anathematized.

Negative qualities.

No administrative officer places a high estimate upon the teacher who performs his duties as if they were a task; who feels that all processes of the school are onerous and burdensome; who shirks assignment to duty; who suggests that he has more work than other members of the force; who counts hours; who must be reminded of his assignment; who is habitually tardy in meeting or in dismissing his classes; who must be prodded for his reports; who tacitly disclaims his responsibility in the discipline of the school; who slights his work on committees; who exhibits in any manner a spirit of enmity, envy, or jealousy towards other teachers, or manifests an unwillingness for coöperation with all the forces of the school.

The Rewards of the Teacher.—Whenever one

contemplates a life work, there obtrudes the very practical question, "Does it pay?" The answer to this question as it concerns the profession of teaching will depend upon what is meant by *pay*. If it means the amount of money received by the teacher for professional services, faithfully and skilfully rendered, when compared to that received by members of the profession of medicine, law, and other learned vocations, or by business men of the same amount of preparation, and general intelligence, the answer would be that it does not pay.

The teacher generally not a practical business man.

The teacher's professional duties unfit him for the sharp competition of business, the cultivation of the trading instinct, the acquisition of "money sense" that enable him, as a general proposition, to make any outside additions to what he receives for his services. He continually sees around him competencies acquired through investments made profitable by the enhancement of values, that he did not discern, and for which his training gave him no power of discernment. The compensation of the teacher does not continue to increase with age and experience as is the case with the competent lawyer or physician. The opinion of one who has gained eminence in either law or medicine often commands a high market price, but the eminence of the teacher gives to his opinion no market value. It is, therefore, more necessary for him to provide against the decrepitude of old age.

There are several reasons for the scantiness of the teacher's compensation.

First, the teacher is a salaried servant or

officer, whichever you will. Most professions derive their income from fees not fixed by those who pay them. The salaries of all who serve the public are small in comparison with those of others of equal training and skill.

Second, the services of the teacher do not directly increase the incomes of those who employ him, as is the case with those engaged in commerce, transportation, etc. His services have no immediate money value. The lawyer's service is engaged chiefly in transactions involving money. The physician restores the health or preserves the life, both easily transmutable into power to produce.

Reasons for the small remuneration of the teacher as compared to that of other professions.

Third, the teacher is seldom a fixture. While others select their fields, more often other circumstances than his own desires will determine the teacher's location. A nomadic life is adverse to accumulation of property. Journeymen must always be content with journeymen's wages.

Fourth, it is still too easy to register as a member of the teacher's craft. The compensation of the professional teacher suffers on account of the great number of novices engaged in teaching.

Fifth, the short professional life of the teacher is a handicap that can not be overcome. The first five years of a vocation is a term of apprenticeship, and the vocation that claims its members only during this term can not reasonably expect to command master's wages.

Sixth, the sudden advent of woman into the ranks, and the unwillingness of the public to

regard her as a professional teacher, so long as she, as a general proposition, does not regard teaching as her life work, operates to lower the teacher's salary.

The teacher must look elsewhere for his chief reward. That he does so is a tribute to his devotion. He is not consumed with the passion for money. He seldom complains at his lot. But society is already beginning to give serious consideration to the value of his services. There is now a gratifying demand everywhere for the best teachers at good salaries. The entire country is being searched for the real teacher. Promotion always awaits him. The best teachers are gradually getting into the best places. It is usually the most incompetent teacher that is importunate about a raise in his salary. Those who most deserve a promotion seldom clamor for it.

The teacher should always be ready to accept a genuine promotion, but by far the greater number of changes of his location falls short of producing substantial advancement of his prosperity, reputation, or contentment.

While the teacher should not be anchored anywhere, his ultimate good fortune depends in a great measure upon his suppression of that restless, unquiet spirit that "robes the distant mountain in azure hue".

The teacher must impress the public, his patrons, and, above all, his pupils, that he is an earnest, skilful artist; that even if he is not a scholar, he is a gentleman, or she is a lady; that he is a power for good, for progress, and for the

A growing demand for the best teachers.

The teacher must convince the public that he is worthy.

elevation of mankind; that he is worthy of his hire. By these means the dignity of his profession is enhanced, its importance in the economy of society is established, and the increase in his compensation is assured.

Even if others, coming after his time, must reap what he has sown, nevertheless, let him sow. It is the solemn and sacred duty of every teacher so to live and so to work that others after him may enjoy the full fruition of his work, and his life; that his successors may find the work more pleasant and more lucrative for his having been in advance.

The teacher's duty to his successors.

But it must be borne in mind that under the most favorable conditions hoped for by the most optimistic, the compensation of the teacher can never be made to equal that of those trades and professions devoted to producing or protecting wealth in the concrete. The successful railroad manager, by whose tactics the coffers of a corporation are rendered plethoric; the capable lawyer, upon whose adroitness depends the saving of fortunes entangled in the meshes of the courts; the expert surgeon, upon whose skill depends the life of a millionaire—these will always command a higher price than the teacher, the results of whose labors are less immediate, less evident, and less easily estimated in money.

Estimates of the services of the lawyer and the physician.

No one must expect the accumulation of a large fortune from the salary of a teacher. Such a fancy is Utopian. All the faithful teacher can expect is a station of respectability among honored men, a decent livelihood, the conveniences,

What the teacher may, and what he may not, expect.

and not the luxuries, of life, means sufficient to support, protect and educate those dependent upon him, and to save by economy for his declining years enough to prevent him from being an object of charity or a burden upon others. It is useless for him to demand more; he needs nothing more; he should crave nothing more.

But the teacher's greatest compensation is not measured in dollars and cents. There are higher rewards than gold. Custom grants him one holiday in seven in addition to the Sabbath for needed recreation and the pleasures of his scholarly habits and tastes. His hours of labor are shorter than those of most men of affairs who work on salary; and his work, the education of the young and trustful, is a task that is in itself a delight and an inspiration.

He is a public benefactor. It is his to train men for all the professions, and he must look to the rich results of his work for his chief compensation. The realization that his is truly a great and noble work, the uplifting of the human race, the training of the honest tradesman, the upright judge, the incorruptible juryman, the virtuous statesman, the faithful legislator, the fearless manhood and the modest womanhood of the nation, gives to him the dignity of character that he would not exchange for silver or gold.

In later life the victories of his former pupils are his triumphs; their fame, his renown; their honor, his glory; their achievements, his compensation.

There is a beautiful myth found in the ancient classics.

Diana, having prepared a fete, summoned to her court representatives of all the trades and professions and announced that in the presence of the gods she would award a golden crown to him who would show his craft to be the most useful to her realm. "The Myth."

Her proclamation called from all parts of her dominion craftsmen of every trade, all eager to gain the prize.

High upon her chair of state sat Diana to weigh impartially the merits of each contestant for the coveted crown.

The sturdy farmer, given a hearing first of all, in simple but confident terms urged his claims, exhibiting his golden harvests and picturing his growing fields, displaying in gorgeous profusion the products of his toil, emphasizing the antiquity of his order, and contending that this trade was the basis upon which all the others must depend for support. As he retired, Ceres, who sat on Diana's left, gave him an approving smile, and he felt the contest won. The farmer.

Next came the sailor, confident as his predecessor. He portrayed the dangers of the deep, the terrors of the storm king, and the sacrifices of a life upon the treacherous waves, and entreated a just consideration of the self-denial of him who relinquished all the pleasures of a home that he might bring to the homes of others the luxuries of other climes. He retired not without friends among the assembled gods, for Neptune The sailor.

nodded his approval and Aeolus shouted with applause.

The warrior.

Clad in rich paraphernalia of war, with gleaming helmet and glistening spear, arose the warrior. Upon his brow sat courage, and love of battle shone from his piercing eye. He strode into the arena like a victor proposing terms to a vanquished foe. The recital of his deeds of daring called forth a murmur of admiration from the assembled deities, and Mars applauded vociferously. He retired with the martial bearing and haughty stride of the destroyer of a thousand cities.

The smith.

Discomfiture was visible in the faces of all the competitors, but the brawny smith, after some delay, marshalled courage to plead his cause, and exhibit the products of his skill.

He contended that without the creation of his shop agriculture would be impracticable, commerce unattainable, and warfare impossible. He credited the arms so boastfully exploited by the soldier to his own account, and protested that without the products of his forge, man would never have emerged from a state of barbarism.

Upon the conclusion of this passionate oration, Vulcan expressed his approbation, but Diana, calm and unfathomable, called for other contestants.

The statesman.

Arrayed in his stately robes of office, appeared the statesman, representing, he said, the lawgiver, the jurist, and the advocate. Practised in all the graces of oratory and skilled in the charms of rhetoric, drawing inspiration alike from phil-

osophers and poets, soaring to heights giddy in their grandeur, he stood, as he affirmed, the exponent of the liberty of man, the protector of the weak, the defender of the poor. To him, he claimed, governments owed their origin, their power and their perpetuity; society its existence, oaths their sanctity, human nature its culture, and mankind its civilization.

Captivated by the charm of his fancy, the perfection of his logic, and the magnetism of his personality, the assembled deities forgot their special charges, and the hitherto immobile countenance of Diana indicated clearly that the award was made.

But surveying the multitude before her, Diana descried in the rear of the court a silver-haired man who had taken no part in the rivalry. "Who are you?" she asked, "and why do you not speak?"

"I am not a contestant", he replied. "I have no champion deity, I am merely a looker-on, these young men are my pupils, and I am in attendance to congratulate the fortunate one and to console the unsuccessful".

Then, our legend tells us, that a new light shone in the eyes of Diana, and that amid the plaudits of the gods and the contestants, she placed the golden crown upon the frosted head of the old schoolmaster.

The
schoolmaster.

CHAPTER IX.

SENSORY EDUCATION.

When a few weeks ago the human voice without the intervention of cable or wire was carried from the Eiffel Tower in France to a tower in Arlington, Virginia, and again from Arlington to Honolulu, human achievement reached another of its climaxes. So rapidly have the products of the human intellect followed each other during the last few decades that the imagination hesitates to venture far into the field of prophecy of the marvels that may await the next generation.

Modern science has revolutionized the processes of every industry, trade, and profession. Farming, mining, fishing, teaching, as well as the practice of the professions of law and medicine, all have felt the magic touch of the wizard Science. A Burbank, an Edison, a Marconi or a Pasteur is born, and by his birth new sources of knowledge are discovered, and the world is transformed. The primitive methods of planting, cultivating, and harvesting, are no more. The bacteriologist, with his microscope has overturned the old theories of medicine, and the iron horse of Watt and his followers, has revolutionized all the methods of commerce, traffic, and transportation.

Wireless
telegraphy.

Improved
methods in
all activities.

When we consider the almost miraculous achievements of the higher powers of the mind, we are liable to forget one important fact as stated by Comenius, that "There is nothing in the understanding that has not been first in the senses", and forgetting this truth, we are apt to conclude that the training of the senses is no longer necessary, or that nature and the informal agencies of home, society, etc., afford abundant opportunity for their development.

All knowledge comes through the senses.

It is true that in a civilized state man's dependence upon acuteness of sense is not nearly so absolute as during the time he lived in the wilds of savage life, beset by ferocious beasts and barbarous foes, when his chief reliance was upon stealth and cunning for obtaining his food and preserving his existence. Under these primitive conditions keenness of sight, acuteness of hearing, swiftness of foot, and strength of muscle were most valuable and essential attainments.

Acuteness of sense not so important in civilized as in savage life.

It should be remembered, however, that skill in the construction of all our mechanisms depends upon the accuracy of the sight and the touch, and frequently the hearing. The skill of the physician in the diagnosis of disease depends considerably upon his accuracy of sight, that of the surgeon upon his deftness of touch and adroitness of hand, while the value of the services of jewellers, watch and instrument makers, millers, and professional buyers of all kinds of textiles, depends almost solely upon the training of one or more of the senses.

Skill in manufactures dependent upon accurate sense perception.

Some brands of scientific instruments, as mi-

croscopes, theodolites, stethoscopes, as well as particular kinds of cutlery, glassware, etc., become famous because of processes relying entirely upon the efficiency of the senses. Some pottery manufacturers, through their specially trained workmen, guard their secret methods, which can be learned only through special training of the senses, the processes not being susceptible of reduction to formulas, recipes, or printed directions.

Lack of skill as a carpenter, blacksmith or other artisan, merchant, trader, architect, or teacher, frequently results not from want of industry, native ability, or intelligence. Nor are workmen always inexpert because of ignorance of fundamental principles upon which their vocations are based. They are unskilful because they have not learned to see, to hear, and to feel for themselves; because they get their impressions, their opinions, and their ideals secondhand. Not knowing how to study nature, they adopt what others say of her; not having learned how to observe and interpret, they must accept the interpretations of others; incapable of initiative, they remain imitators all their lives. They learn how to translate from one language to another; they become adepts in construing the thoughts of others, but they have no original thoughts of their own. How many cooks, with years of experience, have not learned how the commonest viands ought to taste, or what aroma good coffee ought to have! How many housekeepers never learn how to arrange furniture or to hang pictures tastefully, or to select

Many do not
"see for
themselves."

paper, carpets or pictures that appeal to the eye. Unpracticed in the use of the senses, the longer the experience, the more wooden the products.

But we are told that such defects are simply evidence of lack of culture or poverty of taste. Agreed: the term taste is expressive, and culture means a refinement of all the senses. The cultured man sees well; the tawdry and the slovenly are as offensive to his eye as the coarse, the ill-bred, and the obscene are repugnant to his mind.

Culture is the refinement of the senses.

We too often think that we are studying a subject when, in fact, we are only studying what some one else has said about it. The young teacher often fancies that he is studying psychology, when he is merely learning its terminology, memorizing definitions, and repeating technicalities, when he does not know how to study his own mind or the nature of the children that cluster around him every day. It never occurs to him that right at hand, inviting his finest thought, are the living creatures whose features are so feebly portrayed in the weary pages of a lifeless book. To study psychology is to study children; to learn botany is to learn plants.

The study of books instead of subject.

First hand knowledge may not always be the most scientifically accurate, but it leads ultimately to the safest conclusions. We rely with a greater sense of security upon our own impressions. We feel surer and safer in dealing with what we know for ourselves. We proceed with more confidence when relying upon our own knowledge "gathered where knowledge grows". We get the best flavor

of the peach, if we pluck it ourselves from the tree.

In the courts of the country, a witness, as a general rule, is not permitted to give "hearsay testimony". He must tell only what *he* saw or heard, himself; not what *another* saw or heard. This principle of testimony is founded upon the fundamental doctrine that knowledge gained directly through the senses is most reliable. If all men were absolutely truthful and incorruptible, the details of a transaction might be transmitted through a dozen individuals without material alteration, but the chances are that in passing through half so many they would be unrecognizably mutilated. We revive only our own images. We can not transmit them to others. Of ten men sitting around a table each sees a different object. Each sees the table from a different view point. No one of the ten can tell the second one exactly what he sees, and the second can not describe to the remaining eight just what the first *said* he saw. Photographs of the same garden taken from different points will all appear different, some feature of each will be wanting in all the others. Let a student make a careful drawing of a crawfish; then let a second student copy the drawing of the first, a third student, the drawing of the second, and then compare the drawing of the third student with the crawfish itself, and note the want of resemblance. A student once had attempted a copy of a portrait of his father. Showing the copy to his brother, he asked an opinion of the merit of the drawing, and received this

First-hand
knowledge
most
reliable.

Different
points
of view.

comment, "It would be a pretty good picture, if you could find anybody for it to favor".

It may be urged that there is no *general* power of observation; that exercises which train the observation in one direction do not cultivate it in all directions, and that the guest who recalls only the apparel of the visitors is a case in point. The fact that one recalls only one class of percepts when upon occasions many classes are available, only proves that he who observes but one class has been poorly trained in the use of the senses.

No general powers.

As a teacher, I once had an experience which illustrates the soundness of the doctrine that safest knowledge comes through sense experiences. I had many times tried earnestly (and I thought intelligently) to explain to pupils what the textbooks call the "phosphorescent sea"—a phenomenon arising from the presence at certain times of "innumerable, microscopic, phosphorescent, animalculae", and I had congratulated myself more than once upon having illumined this interesting and beautiful phenomenon. But one night, as I went with a sail-boat party across Matagorda Bay, it happened that these "microscopic organisms" were having a regular jubilee, and our boat cut through them a path of living fire, and every disturbed porpoise left a shining streak behind him. I then realized fully how signally I had failed to give my pupils even a faint conception of the gorgeous spectacle.

Concrete illustrations always best.

Standing one morning on the beach in a city on the Gulf of Mexico, I overheard a man remark, as he stood transfixed before the phalanxes roll-

ing in from the deep, "I am going right home and bring all my family here to see this. If I had had any idea it looked this way, I would have come here twenty years ago".

Of course, this man had some previous kind of conception of what a great body of water is, but never until it presented itself "in person" had he valued its acquaintance or cared to present it to his family.

That people everywhere are careless observers, we have abundant proof. Many who all their lives have been readers of books, and newspapers, have never taken pains to observe how the letters are formed, and their attempts to reproduce them from memory show their lack of accurate sense perception. Mistakes in the form of the letters "N" and "S" are most common. Look from your car window, as you pass through any section of the country, and observe the rude signs displayed in the shop districts of the cities, and you will meet such exhibitions as these:

SHOE SHOP REPAIRING NEATLY DONE

Examples of this kind might be cited indefinitely to show that in order to form correct images one must have received correct sensations. To exercise the senses well in perceiving the differences of objects, is to lay the foundation for all knowledge, all skill and all discreet and cultured action in the course of one's life. Because of the neglect of sense training in the schools, because the mastery of many subjects is undertaken by ab-

stract rather than concrete methods, instruction becomes irksome to the teacher, study burdensome to the pupil, and thoughts, ideas, and conceptions are confused and unreliable.

The laboratory method of teaching the natural sciences is now universally adopted, and the method has passed beyond the stage of needing either defense or explanation. The chief virtue of the method consists in that the students are made to use their senses, and not required or permitted to rely solely upon authority. They are required to perform experiments, to verify formulas, to test the truth of laws, and to apply them to things that they can see. The time was when physics, chemistry, botany, and other sciences were taught altogether from textbooks, but, happily, that time has passed. The laboratory method, modified to suit the subject and the conditions, is now also used in the teaching of several other subjects. Geography and nature study are best taught through the images that children have acquired through their outdoor experiences. Any science that does not bring the student face to face with concrete objects is now regarded as a farce. Modern methods utilize all the experiences of the child. Modern teachers have learned finally that books do not contain all the knowledge that children should acquire, and that the knowledge gained exclusively through books is less valuable, especially for children, than that acquired through personal contact with objects of nature.

This doctrine is admirably expressed by Whittier in "The Barefoot Boy".

**Superiority
of the
laboratory
method.**

**The value
of outdoor
experiences.**

"Barefoot
Boy."

Knowledge never learned of schools,
Of the wild bee's morning chase,
Of the wild flower's time and place,
Flight of fowl and habitude
Of the tenants of the wood;
How the tortoise bears his shell,
How the woodchuck digs his cell,
And the ground mole sinks his well;
How the robin feeds her young,
How the oriole's nest is hung;
Where the whitest lilies blow,
Where the freshest berries grow,
Where the ground-nut trails its vine,
Where the wood-grape's clusters shine;
Of the black wasp's cunning way,
Mason of his walls of clay,
And architectural plans
Of gray hornet artisans!
For, eschewing books and tasks,
Nature answers all he asks;
Hand in hand with her he walks,
Face to face with her he talks.

When all things I heard or saw
Me, their master, waited for.
I was rich in flowers and trees,
Humming birds and honey-bees;
For my sport the squirrel played,
Plied the snouted mole his spade;
For my taste the blackberry cone
Purpled over hedge and stone;
Laughed the brook for my delight
Through the day and through the night,

Whispering at the garden wall,
Talked with me from fall to fall;
Mine the sand-rimmed pickerel pond,
Mine the walnut slopes beyond,
Mine, on bending orchard trees,
Apples of Hesperides!

The laboratory method is one phase of the general method of teaching, based upon inductive philosophy, the influence of which, within the last hundred years, has transformed the educational, commercial and industrial life of the world, brought into existence new arts, new industries, new systems of government, new processes of manufacture, and new methods of communication and transportation, and established new ideals of schools, society, and education. Inductive philosophy seeks the truth through the practical and concrete; it is distinguished by the importance it attaches to the method of gaining percepts,—by the sense process. Its observations are careful, and it is equally painstaking in recording observations and making inferences, testing by experiment, finding the relation of every fact to other facts, and determining the limitations of its application. It means intelligent use of the eyes, the ears, the touch, and the hands.

It is only in comparatively recent years that recognition has been given to the fact that defects in the senses, especially in sight and hearing, have been the cause of retardation and supposed mental deficiency of many children; most teachers formerly taking it for granted that if the child

**Results of
the inductive
philosophy.**

has eyes he can see, and if he has ears he can hear.

Many devices and methods are now used to make the work of the school appeal to the senses of the child. Among the first devices used was the *map*. By means of the map the child gets a mental picture of the shape of a division of land and water, and of its size relative to that of other divisions. The ordinary map, printed on a flat surface, has been greatly improved in recent years. Schools are now supplied with *relief* maps, which illustrate not only the shape of a continent or an island, but show its elevations and depressions, its mountains and valleys, river basins and ocean depressions, so that through the sense of sight the child is brought into a knowledge of the physical features of the different divisions of the earth.

Nearly all textbooks are now illustrated. The art of *picture* making has kept pace with the progress of science. In no other department of science has there been more remarkable advance than in photography, engraving, and all other phases of picture making. The excellence of all classes of pictures and their comparatively small cost have caused their extensive use in the education of children. Not only are all elementary text books well illustrated, but picture charts and wall pictures are used in the schoolroom. The improved stereopticon has become a valuable adjunct in sense training or visual instruction. Several firms in the United States now make a specialty of manufacturing slides for the teaching of his-

Devices and
apparatus.

The use of
pictures.

tory, geography, art, and all phases of agriculture, botany, physical geography, and nearly all other subjects usually taught in the elementary and the high school. We are just now entering upon a new picture era, that of the "moving picture". The moving picture business has already assumed vast proportions. Many thousands of men and women are employed, and many millions of dollars invested in its various branches of manufacture and exhibition. The throngs that attend the exhibitions throughout the country testify to the popular appreciation of this new form of amusement and instruction. The portrayal of noted historical events, the details of famous battles, and of other noteworthy incidents, has given them a new interest, and animated the hitherto dry pages of history.

The use
of the
stereopticon.

The school will soon appropriate this twentieth century method of teaching many of the subjects that now suffer for want of visualization. The modern photo-engraving surpasses the old wood-cut of our fathers, that always had difficulty in finding "anything for it to favor". Superior to the photo-engraving is the colored picture projected by the stereopticon, where on the screen it may be studied by the class as a whole, and it now seems that the moving picture, that enriches the scene with living creatures, rushing torrents, and rolling billows, is the climax of appliances for sense training.

The moving
picture.

Drawing, both mechanical and freehand, should have a place in every elementary course of study. It trains simultaneously the eye and the hand, and

Drawing.

gives the child early in its career a correct sense of symmetry and proportion. Map drawing invests geography with a new interest; many an exercise in arithmetic, meaningless under the old methods, becomes attractive when the child is taught to apply the foot-rule or the yard-stick in reducing it to a concrete problem. Whenever a mathematical problem can be visualized, the intelligent teacher will so treat it. How meaningless to the child are all the "examples" usually given in "denominate numbers" unless the actual weights and measures, the pound, the quart cup, the yard measure, etc., are present to the senses! Drawing provides the child with an additional language. It is one of the universal languages, and it supplies an additional and effective means for self expression. A striking cartoon that condenses an event or a series of events into the narrow limits of a visible image often wields a greater influence upon the public mind than the most logical and statesmanlike editorial.

Some drawing teachers blunder by confining the activities of the pupil to producing *copies* of the drawings of others. Imitation is the pedagogical plan for beginners, but no one ever becomes self expressive by copying the language of another, whether it is expressed in words, gestures, drawings or paintings. In the teaching of drawing, the pupil should be taken as soon as possible to nature for models. The teacher should understand, also, that learning to draw is not the sole object of drawing. The chief benefit derived from the exercise is the acquisition of a knowl-

Visualizing
the subject
matter.

Making
problems
concrete.

The real
purpose of
drawing.

edge of the object drawn. The pupil is required to draw maps, but not for the purpose of becoming an expert maker of maps. Requiring the pupil to devote the amount of time necessary to become skilful in map drawing is frequently an abuse of the exercise. Accuracy in drawing should be insisted upon, but chiefly for the purpose of insuring accurate knowledge of the object studied.

When a young student reported for the first time to the laboratory of Professor Agassiz, the professor gave him a trilobite, a notebook, a piece of drawing paper, and a pencil, and requested him to study the trilobite all day; to write what he saw, and to make a drawing of the trilobite. At the end of the day Professor Agassiz examined the drawing and said, "Go right on, you have not yet seen half of it". This process continued three days without any assistance, direction, or suggestion from the teacher, the pupil being required to see for himself and to express himself.

**Value of
attention
to detail.**

Music as a subject for sense training and self expression deserves more attention even now than it usually receives. Nearly all cities of the country now provide instruction in vocal music for all the children. Even to be able to sing simple songs from memory is a useful attainment. To be able to read music, and later to interpret and to feel it is as valuable an accomplishment as to read and understand any other language. The practice of music has one distinct advantage over drawing in the class room. It permits "team work", co-operative effort. Taught to classes, it not only permits but demands unity of action. There is

**The
educational
value of
music.**

no exercise that demands a greater combination of all the senses and faculties at one time than the artistic rendition of a piece of instrumental music. Dr. Eliot says, "Did you ever watch an organist playing an organ with several banks of keys and many pedals? That process, particularly when the organist plays from memory, is one of the most extraordinary exhibitions of the simultaneous action of many parts of the nervous system of which the human being is capable. The hands and the feet move rapidly and rhythmically, each hand and each foot being separate from the other in its motions; each finger works separately; the ear takes instant note of the time and the harmony and of many details in the volume of sound; and then the memory is at work in reproducing the composition from a record which exists at the moment only in the brain of the player. For an effective training of that complex nervous system which serves what is called the mind, playing upon a musical instrument, or singing, excels every other training of the nervous system to coordinate action, simultaneous within a fraction of a second, the coordination of all the nerves and senses in action being often intense and intensely enjoyable".

A recent and valuable aid in teaching music is the phonograph which is being rapidly appropriated by the school for the cultivation of a pure musical taste. At only a nominal cost, considering the number it serves, every school can now be supplied with this marvelous product of man's ingenuity. The phonograph gives every day

**The
phonograph
as a school
instrument.**

faithful reproductions of the music masters, and it enables every school to give a graded course in music appreciation, besides proving remarkably helpful in teaching singing in the common schools.

Music, vocal and instrumental, may be called an intensely "domestic art". What can serve more effectively to keep children off the streets, from leaving the home for entertainment, amusement and self expression than music in the home, where all can participate? One of the happiest families that I have ever known was one in which every member of the family had a place in the "home orchestra".

Music, a domestic art.

Industrial training, more particularly those phases of it included in agriculture, manual training, and domestic science, has grown in popularity during the last twenty or thirty years, for the reason that it brings the student face to face with the most concrete and practical problems of life.

Elementary agriculture, as it can be taught in the high schools, not only trains the perception and the judgment but furnishes many forms of genuinely useful information. The germination of seeds, cultivation of the soil, processes of grafting and budding, soil inoculation, drainage, value of seed selection, nutritive value of different feeds, breeds of domestic animals, methods of testing milk and of producing clean milk and butter, destructive insects and methods of their control; are all questions germane to the work.

Agriculture.

In manual training an excellent experience is provided for the eye and the hand. Excellent

**Manual
Training.**

drill is insured by the course in mechanical drawing. Skill in the use of tools and machinery in constructing articles of furniture is acquired. One of the most valuable, as well as one of the best examples of the strictly concrete exercises, requiring accuracy of eye, hand, and judgment, is found in the student's process of moulding or forging an article of iron. 1, he makes an accurate drawing of what he has planned in his mind. 2, he fashions a wooden model of it from the drawing. 3, he makes a cast of the model in plaster of Paris. 4, he moulds the article.

**Domestic
Science**

Domestic science takes the student into a field that is preeminently utilitarian. The proper method of preparing food has a practical application in every household, and other phases of the subject are as useful in their application as cooking. A course in domestic science should prepare the young woman to preside over a home and direct its affairs intelligently and joyfully. The course should include not only the preparation of food—including cooking—but all those subjects that pertain to the administration of a home—the kitchen, the dairy, the laundry, the parlor, the bedroom and the nursery. Instruction should be given in subjects that pertain not only to the practical or useful, but also to the ornamental. The home ought to be not only clean, tidy, and sanitary; it should be also beautiful.

**The home
formerly an
industrial
educational
agency.**

Industrial training in the school is more necessary now than ever before. The time was when every family felled the trees and built its house, made its furniture, wove its clothes, and crudely

manufactured nearly all utensils and tools employed in the home or in the field. In those days every boy and girl had a part in these industries and thus received a practical training that the home under modern conditions can not provide.

The introduction of mechanical and industrial training in the schools has been a protest against the once prevalent idea that education was a thing apart from the actualities of life, having only culture for its goal. But there are some dangers attending the new education. When we conclude that man is not educated by books alone, we must guard against the other extreme of attempting to educate without books. While education must deal with the concrete, the abstract is still as vital as ever. Learning to see and to hear intelligently, and to work skilfully with the hands, does not make the sum total of a liberal education. Education is a development from the ability to handle concrete things to the ability to handle and to comprehend abstract things. The trained mind is one that can pass readily from the concrete to the abstract. The student must be so trained that he can pass easily from arithmetic, which deals with concrete numbers, to algebra, which deals in symbols representing general (abstract) quantity.

The workman deals only with the concrete object; he shapes and fashions the materials under the supervision of the mechanic. The mechanic deals with both the object and the drawing, which is the abstract representation of the object. He is under the direction of the architect. The

**Books can
not be
discarded.**

**The work-
man, the
mechanic,
and the
architect.
The teacher
must assume
the role of
all three.**

architect deals with both the object and the drawing, and also with the more abstract vision, which, to become of practical utility, must be reduced to the drawing, and then to the material form. The architect plans; the mechanic interprets; the workman performs. The workman employs perception, the mechanic perception and conception, the architect perception, conception, and imagination. The workman is practical; the mechanic is practical and executive; the architect is practical, executive, and theoretical.

There is also the danger of too great reliance upon laboratories and equipments. Properly to serve the purposes of education, these must be intelligently used. Of what advantage is it for an institution to have all manner of apparatus if it is not used? None greater than that of having a great library when the books are not read. As a library is a place to read and not to hear the librarian read, so is a laboratory a place to work and not to see the teacher work.

Nothing in, about, or around a school ought to be for *show*. Constant pandering by an educational institution to popular applause, exploitation of so-called advantages, in the way of buildings and equipment is undignified, if not reprehensible.

Another danger is worth calling attention to. That is the note book abuse. The scientist in his investigations carefully records all his observations and experiments for the purpose of recalling easily the facts discovered. They become his authority in subsequent investigations. He refers

The proper use of the laboratory.

The note book abuse.

to his notes constantly. But the student is too often trained to put in his notebook the things he should put into his head. Gradually he acquires the idea that whenever the result of an investigation or an experiment is recorded, the work is finished. He depends too often upon things in his note book when they ought to be in his mind. If a fire should consume his board-house, it would burn up all he knows.

It would be well for every teacher to call upon the pupil occasionally to discuss his own notes before the class. So thoroughly has the note book fetich possessed the student that it is not an infrequent occurrence that one presents his note book as his qualification for entrance to college with advanced standing without examination. The note book "fad" attacks all departments of the school, it invades the precincts of subjects that should be carried at all times in the mind. We find note books in geometry, in which the "originals" are solved, note books in history, in which dates are recorded, note books in arithmetic, in grammar, and in spelling. When we think of the absurdity of some of these records, we are reminded of the man who spent his time preparing an index to the dictionary.

CHAPTER X.

THE CONCEPT IN EDUCATION.

Man is dependent for all primary knowledge upon the sense avenues between his mind and the external world. Probably the greatest triumph of the teacher's art is exhibited in the case of Helen Keller, who, though blind and deaf from early childhood, with the two most important avenues closed, has been developed into a cultured woman, accomplished in several languages, and conversant with all the great economic and educational movements of ancient and modern times. What, in her case, seems more wonderful still, is that she, who has no recollection of having ever heard a sound, has cultivated her vocal organs until she can speak her mother tongue, and can discard the usual methods of the blind and deaf in the expression of thought. Miss Keller has been educated through the remarkable development of the sense of touch. Had that avenue been closed and the remaining senses been wanting also, there would have been no means of conveying a sensation to her mind, or of drawing from it the faintest gleam of intelligence. The external world, and even her own personality, would have remained to her unknown, and her

The educa-
tion of Helen
Keller.

mind, if a dormant brain could be called a mind, would have been an untenanted void.

But the senses can convey to the brain only the impressions they receive. They do not provide real knowledge. The sense organs of idiots, insane persons, and the lower animals, are as well developed physiologically as those of the most intelligent scholar or the most learned scientist. Man, after all his training, is weak in contrast to the lower animals in the acuteness of the physical senses. Through the sense of smell the wolf traces unerringly the path of a deer many hours after it has gone. Such achievement is impossible for man. Through the sense of hearing the deer perceives the approach of an enemy when it is still far away. The breaking of a twig or the rustle of a leaf is conveyed to him over long stretches of wood or plain. The hawk, as he glides rapidly over the grass grown field, discovers the hiding hare where man would pass him without notice.

The use made of the impressions received through the senses depends upon the kind of brain by which they are received. Before they are available for service, these impressions must be worked over, refined as it were, as the crude ore is smelted before the pure metal is obtained.

Perception.—The function of the brain that interprets the impressions received through the senses is *mind*. The senses are called the *representative faculties*, their special function is called *sensation*, and the function of the mind that refers these sensations to the objects that produce them is called *perception*. Sensation and perception

The senses supply crude knowledge.

Acute senses of animals.

Sensations need to be worked over for interpretation.

Perception.

Sensation.

Observation. together constitute *observation*. The knowledge of an object gained through observation, that is through one or more of the senses, and referred to its cause, it called a *percept*. The percept is the interpreted sensation. A percept, when once in the mind, may be revived when the object producing it has been removed and is no longer in position to affect any one of the senses. This revived effect is not, itself, a percept, but a copy of a percept, and is called an *image*. The process of forming images, or reviving percepts, is called *imagination*.

Percept.

Image.

Imagination.

From the foregoing definition of perception, it is evident that what is gained through the senses alone does not determine the significance of the percept. In no two individual minds, observing the same object, is formed the same percept or is awakened the same train of thought. What a flower is to the botanist is quite a different thing from what it is to the artist. Previous experiences, biases, prejudices, even present mental or physical conditions, all exert a determining influence upon the significance of a percept. We may all see the same thing, but no two see it alike. Each gives his own coloring to what he sees. We may all hear the same thing at the same time, and from the same point, but no two of us can recall the same sounds, or reproduce the same conversation. What each sees is modified by what is in his mind at the time; what each recalls is determined by what part of it is most interesting to him. Every book we read, every picture we see, depends for its interpretation upon our

Complete perception depends upon previous experience.

former experiences. If there has been a paucity of experiences, there is a weakness of the percept.

Apperception.—The function of the mind that interprets the percept in the light of past experiences, combines it with images of former percepts, unifying them into a new and more comprehensive percept, is called *apperception*. It is through apperception that the mind groups related ideas, enlarges the groups by the addition of new percepts and new experiences, correlates all the acquisitions in all the arts and sciences, and raises the standards by which we form judgments, and comparisons. This principle of mental activity is meant when we say that the natural order is “from the known to the unknown”. Whenever the child meets a new object, he names it in conformity to some past experience. His use of words and his coining of new words can always be traced to ideas back of him. A child, whose father had just brought home some doves, said: “Mamma, may I pick the *leaves* off these birds”? At another time, finding his little brother had run his hand into a stovepipe that was lying in the yard, he said: “Mamma, the baby has put his hand into the *chimney-post* and got *shoe-black* all over him.” Through apperception the mind is continually interpreting new facts by means of ideas already in possession.

Apperception is not a distinct mental process. It is one of the components of every significant percept, and as such it enters vitally into all the processes of learning and largely determines the efficacy of the processes of teaching. It com-

**Apper-
ception.**

**From the
known to the
unknown.**

**Estimates
and
standards
are con-
stantly
revised.**

prises the processes of evolution and assimilation. Our *standards* of morals, of men, of beauty, of utility, even of size and distance are being continually revised, because our new experiences are constantly enriching our mental content and discovering to us the deficiency of the percepts previously formed. We are continually revising our estimates. Wealth of experience changes our standards. Our first teacher was in our estimation accomplished in all the arts and graces that mark a great man. When we meet him after many years we find that a great change has come over him. He has lost in scholarship, in general knowledge, in intellectuality. We wonder what has befallen him. But he may have, in fact, not changed one whit. We ourselves have changed. Since we first knew him we have met many men of superior attainments, and our ideal of men has changed.

**Changes in
the concepts.**

We have a distinct recollection of the home of our childhood. We remember the orchard, the garden, the cow-lot, and the well; the path that led to the spring, and the huge oaks that skirted the road. When we return after many years we are surprised to find that everything has shrunk. The trees are not so tall; even the hills are not so high; the well seems nearly filled up, and the spring has been brought nearer the house. The house itself has lost in size and grandeur; its ceilings are low, its halls are narrow, and altogether it is a commonplace affair. The old farm once so vast that we were afraid of being lost in our rambles among its brakes and jungles, has

**Growth of
concepts.**

suffered the general shrinkage. How changed seems everything! The changes seem so real that it is difficult to discover the cause. But the change has been in us. The content of our minds has changed. We measure by a new chain; its links are longer, and there are more links in the chain.

The Concept.—The percept contains a number of elements, such as size, shape, color, structure, hardness, etc. When the percepts of the individual things we see agree in a number of these elements we say the things are of the same *kind*. But the individuals of a kind generally differ in some points which are called *differences*. When percepts of several specimens of the same kind have been formed in the mind, the elements they have in common form a deep impression, while the differences produce scattering, and, therefore, lighter impressions. The light impressions vanish while the deep impression has a more lasting effect. This is like the image of the photographer's plate of a composite photograph. This composite image, having all the characteristics that are common to the individuals composing the kind or class, is called a *concept*. While the percept, then, is the idea of an individual thing, the concept is the idea of a class. Stating it in another way, if we ignore the individual differences of several individual robins, we arrive at the concept *robin*. In the same manner we form the concept *dove, lark or swallow*. If we consider only points of agreement or similarity among robins, doves, larks, swallows, etc., ignoring the class-differences or *differentia*, in size, color, structure,

The process
of forming
concepts.

etc., we reach the concept *bird*. Continuing the process we arrive at the concept *vertebrate* and then *animal*. The sum of the elements involved in a concept is called the *connotation*, while the number of concrete objects to which the term can be applied as a name is called *denotation* of the term. The fewer the elements considered in forming the concept, or the less its connotation, the wider is the application of the concept or the greater its denotation, and vice versa.

Science is one aspect of a system of concepts, in which the concepts of wider application are the higher. The location of any concept in the system of knowledge is its *definition*. A definition is generally the naming of the superior concept, and the additional statement of the differentia that distinguish the smaller kind from other kinds in the larger class.

The
definition.

The fewer the elements that enter into a concept, the more *abstract* and the more *general* it is, and the more exact will be our thoughts with reference to it. The mathematician thinks in general terms when investigating and defining the properties of triangles, quadrilaterals, circles, etc., and, therefore, his science can be more exact.

The more numerous the elements that enter into a concept are, the more *concrete* and *specific* it is, the less exact will be the thinking in regard to it. Hence, the natural sciences, which deal with rocks and plants and animals, are said to be less exact than the mathematical and physical sciences, while the social sciences, which deal with specimens of the most complex combinations of

qualities, namely, men and groups of men, are the least exact of all.

Formation of the Concept.—The process of forming concepts are Observation, Comparison, Abstraction, and Generalization. Illustrative of this and the preceding paragraphs relating to the concept, some things already stated will be repeated in a more concrete way. The student of botany may begin with the study of the leaves of plants. He *observes* their differences, and among other peculiarities he finds by *comparison* that some are *parallel-veined* and others *netted-veined*. He then considers apart from the leaf itself the characteristic of each; that is, he draws off, *abstracts* the characteristics for consideration, ignoring all other qualities, as color, shape, etc. Having separated the parallel-veined leaves from the others, he *generalizes*; that is, he applies the quality of parallel-veined to a group. This group idea is a concept of a class, and the entire process by which it is reached is the botanist's method of classification.

The formation of concepts.

Group or class idea.

In observation, comparison, and abstraction, a limited number of objects is considered, and some quality or characteristic common to all is selected, but in generalization the mind classifies into one group not only all the individual objects examined that have the characteristics, but all other objects that possess such characteristics. These general notions expressed in language are the *principles, rules, definitions, or laws* of the sciences. This process of classification, of reaching a group idea from the examination of individuals, is invoked

Process of deriving principles or laws.

when we are admonished that we must proceed from the particular to the general; from the concrete to the abstract.

As a further illustration of the method of forming concepts, the following is taken from Bergen and Davis' "Principles of Botany", page 152.

"The *classifications* of animals and plants are attempts to express the actual kinships, or what among human beings are called blood relationships, which are believed to exist among them. To illustrate the principles of classification let us consider the position of the pines among plants. All of the pines have for their fruit a scaly *cone* whose seed are borne *naked* at the base of each scale and mature the second year. The leaves are *needle-shaped, evergreen, and clustered*. Any tree which has all the characteristics above given is a pine.

"The spruces, hemlocks, firs, and larches agree with the pines in many respects, but all of them mature their seed the first year, and their foliage is different. The American cypress has a globular woody cone and deciduous leaves in two rows. The arbor vitæ and the juniper have awl-shaped or scale-like leaves, not in clusters.

"All of these cone-bearing trees are distinct kinds, but they are grouped together because the seeds are borne *naked* on the scales of the cones. This peculiarity separates the group from a much larger assemblage of seed plants in which the seed are borne *enclosed* in seed cases, pods, or other types of fruit. Finally, all of the *seed-bearing* plants are separated from the *spore-*

bearing groups by the possession of methods of reproduction which develop *seeds*.

“Thus the pines find their place in the classification of plants through clearly marked characters which define several different groups. These characters are (1) the presence of the seed, (2) the fact that the seed are exposed or naked, (3) the development of the seed in a cone type of fruit, and finally, (4) some peculiarities of the cone, and the character of the foliage. The process of classification leads from an assemblage of more than one hundred thousand kinds of plants (the seed plants), through successively smaller divisions, to the relatively small group of the pines, with hardly more than seventy known kinds.”

The teaching process must constantly deal with the method of forming concepts. The concept is the goal of instruction. Detached, unrelated facts are valuable only so far as they serve as nuclei out of which general truths are evolved. The solution of a particular problem in arithmetic is useful only so far as it causes the recall of general principles; or leads to their application to similar problems. Our text-books are now presenting no problems that serve merely as mental gymnastics.

CHAPTER XI

THE PROCESS OF THINKING

There are three aspects, or stages of thinking: Conception, Judgment, and Reasoning. These are not three distinct or successive mental acts; but each is dependent upon the other two.

The three stages of thinking.

No line of division can mark the boundaries between any two of the various mental processes. The mind does not consist of distinct faculties, nor is one kind of mental activity wholly different from another kind. There is diversity but unity in all.

Conception.—As conception, the first step or stage in the process of thinking, was fully explained in Chapter X., it will not be discussed further.

Conception.

Judgment.—Judgment is the process of comparing two concepts, to ascertain if they agree or disagree. In this process there must be two, and only two, concepts taken at one time.

Judgment.

When we compare the concept *sheep* with the broader concept *animal* and find that they agree, we say, "a sheep is an animal." This is a *positive* judgment. If we compare the concept *sheep* with the concept *goat* and find that they do not agree, we say, "the sheep is not a goat". This is a *negative judgment*.

Reasoning.—Reasoning is the process of comparing two judgments, and from them deriving a third. Take the classic illustration: All men are mortal; Socrates was a man; therefore, Socrates was mortal. The three sentences, or judgments, as used in the above illustration, together form a *syllogism*, the usual form of deductive reasoning, which will be treated later. To enter into the various classes of the syllogism would take us too far afield. For their treatment, the student is referred to any good text on logic. **Reasoning.**

Thinking may be regarded as a general function of the intellect. Whenever one is forming percepts, concepts, or judgments; whenever one is studying relations or discovering differences; whenever one is weighing, comparing or classifying, or is engaged in any of the activities described above, he is *thinking*. Often in thinking one recalls many percepts and concepts that after a little reflection are found irrelevant to the matter in hand; the judgment rejects these as not agreeing with others in the “chain of thought.” Thinking, then, confines itself to the consideration of things that are relevant; that is, thinking necessitates *attention*. **Thinking as a general function of the mind.**

Again, thinking is an effort to solve a specific problem, or to reach a definite conclusion, by applying experience previously acquired. The solution of any problem is dependent upon the relevancy of the knowledge and experience brought to bear upon it.

When we have a toothache we go to the dentist, when our eyes give trouble we go to the oculist,

because in each case we expect to find previously acquired experience requisite to efficient service. The teacher does not use similar judgment when he fails to direct the pupil's preparation of mind for the comprehension of the lesson assigned, or for the solution of a problem proposed. The promiscuous propounding to pupils of unrelated questions, when no pertinent experience has been provided, cultivates in them the habit of random guessing, the effects of which are pernicious. The ability to think quickly and accurately when a problem arises unexpectedly, is gained by diligent and careful training in the processes of thinking, and the acquisition of a wealth of knowledge in that domain of thought to which the problem belongs.

The lawyer frequently saves his cause by his ability to cite decisions of the higher courts; as often he loses his cause because of inability to call quickly into consciousness, precedents, rulings, and decisions in support of his contention.

The problem for solution may be that of the classification of a plant, the identification of a fossil, the diagnosis of a disease, the sailing of a boat, the driving of an automobile, the planning of a political campaign, the conduct of an exposition, or the regulation of the tariff—each a specific problem—one simple, another complex, the solution of each demanding ideas, whose possession depends upon our previous associations with matters similar to the problem presented; and the efficacy of our thinking will depend upon the store of our observations, memories, concepts, and

Faulty
method of
questioning
pupils.

Ability to
to think
quickly
dependent
upon
experience.

imagination, and our ability to call them into mind when needed.

Since the concept is so vital a part of the process of thinking, the necessity for *clear* concepts is evident. One's conclusions are often erroneous, not because of defective reasoning power, but because of defective concepts upon which the reasoning is predicated. The concepts are data upon which are based the judgment and the reasoning. If the data are false, the conclusions will be wrong, even though the reasoning process has been faultless.

Clear concepts necessary to right conclusions.

It is important that two persons dealing with each other, whether in buying or selling, in correspondence, or in ordinary conversation, understand alike the terms employed. Confusion, misunderstandings, quarrels, and lawsuits are avoided by previous agreement as to the meaning of all the terms used in a contract. Probably no word, especially if it is the name of an abstract concept, conveys exactly the same meaning to two individuals, since the concept of each depends for its significance upon his previous experience.

As has been previously stated, the concepts of every one grow. Reading, travel, study, experience—all bring into the mind new features, new characteristics that enrich and more clearly define every concept acquired.

It is imperative that the teacher ascertain what is in the mind of a child trying to express himself in words. The *relations* and the *name* of the concept are matters of serious concern, that too fre-

Words without ideas, or words, whose meanings are unknown, a serious fault.

quently are slighted. "Words without ideas" has been long decried by writers on the teaching of children. Pupils frequently fail on recitation or on examination because of their ignorance of the import of the questions propounded. Mistakes concerning the nature of questions—of the meaning of words in a particular relation—are not confined to young children. For instance, a few years ago the writer was called upon to examine the papers of a great many applicants for state teacher's certificates. Among the questions in physical geography was this: "Name the three states of water?" More than ten per cent of the applicants failed to answer this question correctly, solely on account of misapprehension concerning the import of the word "states" in the sentence. Had these applicants thought once that the question meant only to ask what three conditions or forms water might assume, many of them would have easily answered the question correctly. As it was, their answers varied, some answering "Michigan, Ohio and New York," others "Michigan, Illinois, Ohio," etc.

Every school should have an unabridged dictionary, and, in addition, every student should have a small edition in his desk. But the matter of determining whether the student really knows what he is talking about can not be settled by his ability to define words according to the dictionary. I remember that when a child I met the word "roquelaur," and in endeavoring to learn its meaning, I found the dictionary defined it as "a kind of surtout," but as the copy I possessed

Mistakes in
meaning of
words.

omitted to define "surtout," I was as much in the dark as before.

Men change their opinions not because their judgments are riper—or their reasoning is better, but because their conceptions have grown; because they see problems in relations that they did not at first discern. Both Webster and Calhoun reversed their views concerning the "tariff," Gladstone changed his position on several important questions.

**Cause of
Change of
opinion.**

Faulty concepts lay the predicate for faulty judgments. Unless there is a clear conception of each of the two terms compared, no judgment concerning them is reliable.

Two farmers may differ widely concerning the value of a tract of land, because one estimates how much wheat, and the other how much cotton it will produce. Each thinks of what it is worth to *him*. Two different men express different opinions concerning Mr. Adams. B affirms and C denies that Adams is a musician. Each knows Adams well, but to B and C the term "musician" conveys a different meaning, for B has heard only the crudest music, while C has heard the masters. The mind always determines the agreement or disagreement between two concepts as represented by terms; it tests the truth of a statement by comparing it with concepts acquired through former experience. If the statement conforms to standards of truth already established, it is judged to be true; if it does not so conform, it is pronounced false.

**Our Stand-
ards are
made from
our experi-
ences.**

We are prone to pass judgment with too little

knowledge of the terms that we compare, and it is usually those with the least knowledge who are the most confident of the infallibility of their judgment.

The remedy for faulty judgment lies in a more accurate knowledge of the terms compared. Correct thinking depends fundamentally upon clear perception and conception. All progress demands a constant growth in the number and the clearness of our concepts.

Betts, in "The Mind and its Education," says: "When our concepts stop growing, our minds have ceased to grow—we no longer learn. This arrest of development is often seen in persons who have settled into a life of narrow routine, where the demands are few and of a simple nature. Unless they rise above their routine, they early become 'old fogies.' Their concepts petrify from lack of use and the constant reconstruction which growth necessitates. On the other hand, the person who has upon him the constant demand to meet new situations, or do better in old ones, will keep on enriching his old concepts and forming new ones, or else, unable to do this, he will fail in his position. And the person who keeps on steadily enriching his concepts has discovered the secret of perpetual youth, so far as his mental life is concerned. For him there is no old age; his thought will be always fresh; his experience always accumulating, and his knowledge growing more valuable and usable."

Again, judgment may be defined in terms of the concept by describing it as a concept with the at-

**Remedy for
faulty
judgment.**

**How the
mind retains
its youth.**

tention drawn to one of its features; as, *snow is white*. This judgment may be considered as the decision of agreement of the concept *snow* and the abstract concept *whiteness*, but so intimate and universal is this characteristic of snow that whiteness becomes an essential part of the concept snow, so much so, that we do not think of *snow* without thinking of *white* at the same time.

Since reasoning is founded upon judgment, just as judgment is founded upon conception, it follows that mistakes in judgments vitiate the reasoning.

Mistakes in judgment vitiate the reasoning.

Thinking is effort. Day dreaming, reveries, castles in the air do not draw upon the nervous energy, but close, accurate thinking fatigues the mind as muscular exertion wears the body. Long concentrated attention to details, to the forming of judgments, making classifications, searching for similarities and differences taxes the nervous system greatly. The natural inertia of the mind, which must be overcome in order to sustain consecutive thought, is the cause of the failure of so many to become original, independent thinkers. Effective thinking is done by comparatively few, whose opinions and findings the remainder of the world is content to accept. Multitudes cast their ballots either as their fathers did, or as they are led by effective, original, independent thinkers. So far as their thoughts are concerned, many are but echoes of the past, or of the neighboring mountain. The willingness of many to accept without thought, question, or independent investigation the unsupported statements of others, is

Thinking is effort that fatigues the mind.

Few persons become original thinkers.

demonstrated every day. A crowd will stand for hours around a patent medicine vendor, as he harangues his listeners concerning the numerous ills that flesh is heir to, and expatiates upon the wonderful curative properties of a newly discovered panacea; and he will sell his wares to dozens of hale, hearty, healthy, robust and vigorous men, who in all their lives have never known an ache or a pain.

The credulity
of the
uninformed.

The well known character of "confidence" man preys upon the innocent credulity and unsophisticated ignorance of those who have never acquired the luxury of indulging in an independent thought.

The skepti-
cism of the
uninformed.

The proneness to accept as true the authoritative and the traditional causes skepticism regarding anything that is new or violative of belief hoary with age. Columbus was jeered by the rabble as he passed through the streets, because he was bold enough to deny the then prevalent belief that the earth is flat. Galileo was humiliated, dismissed from the University of Pisa and compelled to renounce beliefs, which have since become the accepted knowledge of every school boy.

Effects of
prejudice
upon the
conclusion.

Both our judgment and our reasoning are colored by the personal element. While education, including association, comradeship, travel and cooperative labor tends to broaden man's altruism, it has not yet relieved him, and probably never will relieve him, of prejudice and bias.

This bias affects his judgment even against his will. Man can not be sure of his own conclusions,

when he knows that his interests, his ambitions, his desires, or his affections will be affected by his decisions. This principle is so well established that statutes forbid men from serving as jurors in a case in which they themselves are interested, or in which, by reason of family or business ties, they are even remotely concerned.

Thinking finds results, or seeing results, looks for causes. A thinker once saw an apple fall, as thousands had seen before. Investigating the cause of the fall, he learned one of the secrets of the Creator of the Universe, how the earth, the moon, the sun, all the myriads of stars and planets in the galaxy of heaven, are kept in their places. Yet this simple circumstance, the train of thought to which it led, and the results in which it terminated, made the thinker famous for all time. A noted writer has said that "If all the scientists of all the ages were to meet in convention, they would elect Sir Isaac Newton chairman."

The achievement of Newton.

It was another thinker who first questioned the then generally accepted belief that the transmission of light was instantaneous—that a light created anywhere was instantly visible everywhere. Even astronomers for centuries had believed this. But that light had a velocity that could be computed was conceived by the thinker Roemer, who afterwards proved the truth of his contention. It had long been a puzzle to astronomers why the eclipses of Jupiter's moons always occurred later when Jupiter was in opposition than when in conjunction with the sun. Roemer was convinced

The achievement of Roemer.

that this difference of sixteen minutes and twenty-six seconds was due to the fact that the light had farther to travel in one case than in the other, by the distance across the orbit of the earth, or 183,000,000 miles. Basing his calculation upon these established facts, he computed the velocity of light to be 186,000 miles per second. His theory and his calculation have since been abundantly verified.

Possibly the greatest achievement of the human mind through the process of pure thinking, unaided by experiment or experience, is instanced in the discovery of the planet Neptune, which was made by applying the law that every body in the solar system affects the motion of every other body. Some time after the discovery of Uranus, astronomers, after taking all known causes into account, found there was still something, somewhere, affecting the newly discovered planet's motion, and this fact suggested the existence of another hitherto unknown planet. The question was, "Where is this planet, if it exists?" Two different thinkers, Adams and Le Verrier, applied themselves independently to its solution, and both arrived at the same result, mathematically locating the new planet through the sheer power of the intellect, and the telescope of Dr. Galle verified their calculations.

Induction.—Let us suppose a savage to have reached maturity without any experience with fire, and that on a visit to a neighboring tribe he finds a fire burning. He places on the fire a stick of pine and it burns. When about to infer that all

The achieve-
ment of
Adams and
Le Verrier.

Inductive
reasoning.

substances will burn, he observes in the fire some stones which have not been consumed. He then tries a piece of oak and finds that it burns, and similarly for cedar, cypress, and other varieties of wood. Finding they all burn, he reaches the conclusion that *all wood will burn*.

He has reached this conclusion with respect to wood in general, from his experience with several varieties of wood. This process of reasoning (which consists in proceeding from the particular to the general) is called *induction*. It is by no means necessary that every particular be tested before a general conclusion is reached. If we examine a sufficient number of individuals of a class and find that each possesses a certain characteristic, we are warranted in the conclusion that all others of the class have that characteristic.

Reasoning
from the
particular to
the general.

Deduction.—If the savage, after having arrived at the general law that all wood will burn, should afterwards be in a section of the country where there was no pine, or any one of the varieties of wood used in his original experiment, but in which fir was plentiful, he would proceed confidently to gather some of the fir wood with which to build a fire. His reasoning would then be in this form: "All wood will burn (already proved). Fir is a wood, therefore, fir will burn." He has then reversed the first method of reasoning, and has proceeded from the general to the particular. This process of reasoning, proceeding from the general to the particular—is called *deduction*.

Reasoning
from the
general to
the partic-
ular.

Should the savage then decide to investigate the combustibility of rock by trying all the varieties

easily obtained he would reach the conclusion that *no rock will burn*. Similarly he would be led to the broader generalization that all organic matter is combustible and all inorganic matter is incombustible.

These conclusions would soon be the common property of all. Nobody would try to burn rock of any kind. Should the tribe in its wanderings come upon a coal field, where coal lay on the surface in abundance, none would think of trying to make a fire of it, because of their belief that coal is rock and of their previous experience that all rock is incombustible. If in building a fire a piece of coal by chance should get to the fire and burn, a new problem would arise. Either the general conclusion about rock must be modified or the coal be examined for classification, the solution of the problem resulting finally in the discovery that coal is organic, hence its combustibility.

Although induction and deduction are different phases of thinking, they are closely related. They are not always distinctly separate processes. Reasoning is connecting a particular and a general element. Its operation may take either direction. It may consist in arranging a number of similar objects into a class, or in identifying an object by discovering its agreement with an already established class. Induction discovers particular facts, by means of which universal laws are discovered; as the universal law of gravitation was induced from the particular facts of falling apples. After the establishment and verification of the law of gravitation, the discovery of Neptune was accom-

Inductions
and deduc-
tion not
always
distinct
processes.

plished, as has been stated from data discovered from the irregularity of the motions of Uranus.

But there is danger in basing conclusions upon too limited experience. The child is usually ready to decide a question upon one experience. The longer the experience the more cautious one is in forming conclusions and in making general statements. Scientists are not prone (as a general rule) to form hasty conclusions, for they have learned that similarities are often accidental, and that it is essential to look for differences. Comparison without contrast is not enough.

Jumping at conclusions.

Halleck says: "In some cases the examination of a very few instances will give a reasonably certain conclusion. Within certain limits we may, roughly speaking, lay down the following guiding principle: Where there are logical reasons for the exact similarity of a new instance to others already examined, we may infer the similarity quite boldly, although we are familiar with but few individuals of that class. From the examination of a few cases we might infer that all men have lungs. There is a logical necessity why this should prove true."

Guiding principle of reasoning by induction.

If we should see Mr. Jones measuring the premises of Mr. Smith, we would not be warranted in the *inference* that Mr. Jones had bought Mr. Smith's property. Seeing Mr. Jones measuring the land merely *suggests* a purchase. If we knew previously that Mr. Smith's property was for sale, and also that Mr. Jones was considering its purchase, the presumption of the purchase would be

Inference and suggestion.

strengthened, but the conclusion that the sale had been made would still not be justified.

Perfect and Imperfect Induction.—Induction is of two kinds: *perfect* induction when all possible cases have been examined, and *imperfect* induction when fewer than all possible have been examined in deriving a conclusion. As a matter of fact, there are very few instances in which all the cases can be examined, nor is an examination of all the cases necessary to establish a general law. Whenever there is “the logical reason” of the continued similarity, as explained above, the number of cases examined may be quite limited. On the other hand, a great number of cases might be examined without reaching a correct conclusion. For example, one may reason: horses have lungs, cows have lungs, and so on through the families of goat, sheep, deer, bird, etc., and argue that all animals (including fishes) have lungs, having apparently cited many cases, when, in fact, he has cited only one case, that of *land* animals.

The natural sciences are all built upon inductions. In none of them has the induction been perfect in the sense that all possible cases have been used in any investigation, yet we rely as confidently upon the conclusions of science as we would had every case been passed in review.

As an illustration of perfect induction, take from any text book on plane geometry this conclusion (theorem):

“In the same circle, equal angles have the same ratio as their intercepted arcs.” Note the usual proof.

Perfect and
imperfect
inductions.

Natural
sciences
built upon
induction.

Case I. When the arcs are commensurable.

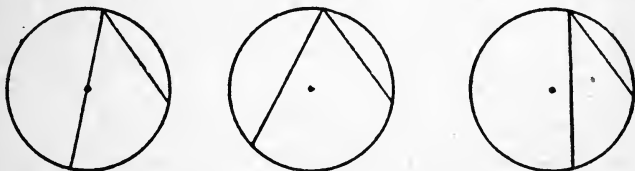
Case II. When the arcs are incommensurable.

The conclusion being logically established for each case separately, the general conclusion follows, for *commensurable* arcs and *incommensurable* arcs include *all* arcs.

As a second illustration take this conclusion:

Illustration of perfect induction.

“An inscribed angle is measured by half its intercepted arc.” Note the usual proof. There are three cases:



1. When one side of the angle is a diameter of the circle.

2. When the center of the circle is within the angle.

3. When the center of the circle is without the angle.

Another illustration of perfect induction.

The conclusion sought is then derived for each case separately. Therefore, it is true as a general proposition, for all the possible cases have been exhausted.

Mathematical Induction.—A type of reasoning known as *Mathematical Induction*, or *Demonstrative Reasoning*, exhibits the process in a unique and effective way; it is also called the *algebraic method of reasoning*. In mathematics the letters of the alphabet are used to denote *general number*,

Mathematical induction.

Demonstrative Reasoning.

Algebraic method of reasoning.

that is, a may be regarded as denoting any number whatever. The same is true for b or any other letter or symbol.

As an example, then, by actual multiplication of $a + b$ by itself, we have $a^2 + 2ab + b^2$, that is, the square of the sum of a and b is the square of a plus twice the product of a and b plus the square of b .

But a and b represent *any* numbers whatever, therefore, the square of the sum of any two numbers is the square of the first plus twice the product of the first by the second plus the square of the second. Similarly

$$(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

may be translated for any two numbers whatever.

This type of reasoning, its soundness and simplicity, freedom from entanglement with irrelevant matter in the course of a lengthy investigation, combined with its terseness of expression as exhibited in its numerous formulas, makes mathematics the powerful instrument for investigation that renders it indispensable to the study of every other science.

Geometric Reasoning.—The best illustration of pure deduction is exhibited also in the demonstration of a geometrical theorem. This type is called *geometric reasoning*.

As an illustration, study the form—wording and all—of a typical demonstration. For example, the well known statement, “The sum of the angles of a triangle is a straight angle.”

The process of reasoning begins with, "Let A B C be *any* triangle," referring always to the figure of a triangle presented with the rest of the argument. Now, let us understand what *any triangle* means. There are several kinds of triangles. With respect to the equality or inequality of their sides, triangles are classified as *scalene* and *isosceles* (the equilateral is a special kind of isosceles triangle) and with respect to the size of its angles they are classified as *acute*, *right*, and *obtuse*. Now, how can the triangle A B C represent *any* triangle, when there are so many *particular* cases of the triangle? How does it become a *typical* triangle, a *general* triangle, including all the classes of triangles? How will the proof about the angles of *this* triangle establish a property of all kinds of triangles?

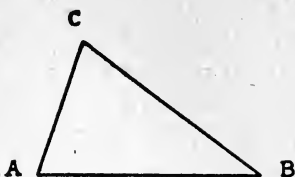


Illustration
of geometric
reasoning

By studying the process of reasoning in deriving the conclusion it is seen that only those properties are brought into the discussion that belong to *all* kinds of triangles. No mention is made of the length of sides or size of angles. "Sides" and "angles" are mentioned, but all kinds of triangles have sides and angles. Each kind has just three sides and just three angles, and the conclusion includes all plane figures that have just three sides and just three angles, irrespective of their relative length or size, and irrespective of the size or the shape of the triangle; therefore, the figure given,

General
conclusion.

by ignoring every property not common to every kind or class of triangle, becomes a universal triangle, and what is proved concerning it is proved for *every* triangle regardless of its kind.

CHAPTER XII

TEACHING PUPILS TO THINK

One of the greatest problems of the school is to train the pupils to think. Every successful business or professional man is a good inductive reasoner. The successful salesman has learned from experience how to approach a customer, how to read human nature in its special guises and under variable conditions. The successful merchant has learned to foresee the wants of his customers. In his mind he has tabulated his experiences, and has derived a conclusion concerning the trend of fashion for the coming season. The successful physician has learned to diagnose symptoms, to detect pathological conditions. The successful lawyer has learned through induction to detect the "willing" witness, to discover motive, and to read the human physiognomy. He has learned inductively what type of man is safest for the defendant on the jury trying his client on the charge of murder, theft, or arson. He has learned that in selecting a jury, the past experience of the talisman exerts a determining influence upon his opinion in spite of law, testimony, or instruction of the court. He has learned, or he does learn by examination of the juror, whether he is controlled by judgment or by sentiment, by testimony or by prejudice.

**Successful
men are
inductive
reasoners.**

So much in the actualities of life rests upon the

Important to train pupils to think.

power to think—to think accurately, quickly, incisively—that the training of pupils to think is an important function of the school.

How may pupils be taught to think? This question can not be answered by formula, recipe, or device. Besides, if such answer were possible, it would be foreign to the purpose of this work. Such answer would stultify the writer and vitiate his purpose, that of leading the readers, themselves, to think. Devices, like prescriptions, are applicable only to special conditions; principles, though their application must ever depend upon individual intelligence, originality, and initiative, are general in their application.

If there is any merit in the doctrine of “Learn to do by doing,” the question might be answered by saying “learn to think by thinking.” But one does not always “learn to do by doing.” His learning to do depends upon *how* he did *while* he was doing. Sometimes one renders it very difficult to learn to do a thing by having been so long in doing the thing the wrong way.

Since thinking is the operation of the faculties of the mind, the proper exercise of the faculties is to cultivate the power of thinking. The first care of the teacher should be to train the pupil to perceive—to observe carefully.

Effective observation, that is the kind of observation that gives training and education, is not general or casual, but consists in careful, minute, attention to details, to small distinctions and differences. Instead of observing flowers, it observes one flower—its petals, its pistils, its stam-

To do things well requires habit of doing one's best.

Minute attention to details a method of training to think.

ens, its roots, and finally, the whole flower. It involves long sustained attention. The scientist is a careful, painstaking observer of seemingly trifling details. The medical student, preparing to treat the diseases of the human body, first learns the body by dissecting it. He traces every nerve, vein, artery, ligament, critically and studies the functions of every bone, organ, and muscle.

Instead of demanding that the pupil observe many things, the teacher should require him to observe a few things well. Instead of asking him to tell all about everything he saw on the road to and from school, during a certain week, the teacher should ask him to describe minutely one object that he saw on the road to school to-day.

The attempt to take into the mind too many things at once tends to dissipate its energies and to impair its perception.

Children can be trained to think by bringing them into contact with something new. Excursions to field and forest, in charge of one who guides their attention and asks only pertinent questions, is a good method of cultivating thought.

**New objects
enlist
thought.**

If the object of such excursion is simply recreation and relaxation, the observation should be turned loose to run at will. An excursion of this kind is greatly educational in its way, but if the purpose is the cultivation of thinking, it should be more definitely planned. The class taken should not be large; the objects observed should be few, and the attention should be focused upon these few until something definite and certain about them has been learned. This kind of observation

**Open air
excursions.**

Good observa-
tion requires
power of at-
tention.

requires highly developed power of attention, the power to take the mind away from distracting noises and concentrate it upon one object to the exclusion for the time of all else. This kind of attention is secured only through interest—without interest, attention soon flags, and without attention clear perception and thinking are impossible. A great problem for the teacher, then, is to invest all the processes of study with interest.

One thing to
be under-
taken at a
time.

Too many things should not be undertaken at a time. Common sense in business affairs teaches this. A man could not reasonably expect to conduct successfully at the same time a mercantile business, a railroad, and a bank. No one now undertakes to prepare for the practice of dentistry, medicine, and law.

The cases in history, in which one man has become eminent in more than one line, as Michael Angelo did, are so rare that they merely prove the rule by being the exceptions.

Students
often engage
in too many
activities.

The high school or the college student should not neglect the social side of life while in school. He should remember that in after years he must live and deal with men. But too frequently he engages in too many activities for his own good. With all the phases of athletics, baseball, football, and tennis, with his literary societies, debates and musical organizations, not to mention the numerous social functions, he has little time left for consecutive, independent thinking.

The best thinking is done in solitude. All the discoveries and inventions to which our civiliza-

tion is so much indebted, have been solved from brains that had shut out everything except those which pertained strictly to the solution of the problem in mind.

Best thinking done in solitude.

By securing quietude and freedom from distraction, the teacher should begin early to cultivate in the child the habit of quiet thought. It is true that the ability to think on one's feet is a desirable accomplishment, and the pupil has the opportunity of acquiring it in the well conducted recitation; but the ability to think in solitude, to commune with one's self, with God, and with nature, without the inspiration of the crowd, is by far the more valuable attainment. One who has long been accustomed to "talking" in the class-room, speaking to meetings of teachers, or other public gatherings, and has fallen into the habit of making extemporaneous addresses, learns, to his regret, that thereby he has decreased his ability to sit in the quietude of his room and think.

Much extemporaneous speaking decreases ability to think in solitude.

While the purely concrete should be presented to young children in teaching them to think, the presentation to them of abstract relations should not be long delayed. They must eventually learn to deal with abstract concepts, and the teacher errs who decides that young children can comprehend only the physically tangible.

Presentation of the abstract should not be too long delayed.

Lessons assigned should not be too long or too difficult. The teacher must learn how long the child at his stage of life can sustain concentrated attention. If the lesson is too difficult, if it presents insurmountable obstacles to the pupil's mind, he quits discouraged, and without desire to

Lessons should be of proper length.

undertake another. Repetition of this error causes a mental surrender, takes away the spirit, just as courage forsakes the army that is always vanquished. On the other hand, the work should not be too easy. It should call forth effort, for without real effort there is no thinking. A regiment of soldiers feels no elation in capturing or routing a solitary sentinel. So the pupil derives no pleasure from solving a "too easy" problem.

The teacher may do too much or too little to encourage thinking. How much ought the teacher to do? That question demands the answer of the teacher. His ability or inability to determine that, stamps him as an efficient or inefficient teacher.

As a general proposition, he should do enough to help the student over difficulties insurmountable by the student, and to direct him over those the surmounting of which unaided would require time that might be more wisely and profitably spent.

The teacher should never do so much that the student is made to feel that he, himself, has done little. The child's mind delights in discovery and achievement. Listen to the tone of his voice as he says, "See what I did by myself!" The ring of triumph is in it.

The teacher may incite or may kill thinking by the manner of assigning the lesson. In the assignment enough ought to be said to arouse the interest of the student. Some *life topic* ought to be the central point of every assignment. The teacher ought not to tell all that there is in the lesson, and how to find it, for the child delights in finding things for himself. Until he has been

What the teacher should do for the pupil.

Life topic in the lesson.

subdued by the methods of the school that reduce him to acquiescence in authority, every child is a young Columbus, a Herschel, or a Newton.

The teacher must give the pupil time to think. Short preparation periods, hurried recitation periods, make thinking difficult, if not impossible. A certain part of every recitation period, it is true, should be devoted to finding out if the pupil has prepared the lesson, but another part should be devoted to the pupil's expression of independent thought on the lesson.

Pupils should be allowed time to think.

By judicious questioning the teacher may call forth the powers of correlation, abstraction, etc. In general, leading questions—those that can be answered affirmatively or negatively—call for neither originality nor thinking on the part of the pupil.

Language is a considerable element of thinking. A reaction has set in against the old method of teaching, in which memory training and acquiescence in authority were the chief elements, and in which pupils were taught words without reference to their meaning. The cry has gone out against "words before ideas" and for "ideas before words." In trying to avoid the error of the old way, there is danger of going to the other extreme. Dickens says, "Our vices are but virtues carried to excess."

Language assists in thinking.

The name of an object, so far as it is an object of thought, is an essential characteristic. Names are not meaningless, unless disassociated from objects. Dewey calls attention to the fact that the mind deals with meanings as well as with objects.

The name of an object becomes a characteristic.

“Every one,” he says, “has experienced how learning an appropriate name for what was dim and vague cleared up and crystallized the whole matter.” When a child sees anything that is new he asks at once, “What is it?” The mere naming of the object adds to it in his mind a new characteristic. A little reflection will convince a man that he can not only talk more intelligently but that he can think more intelligently about an object or a person whose name he knows.

The teacher learns the characteristics of the pupil more quickly if he learns his name. Experience in handling large numbers of students has proved how much easier it is to study the qualities of an individual if one knows his name. Common practice regards this principle. One introduces Mr. Jones to Mr. Johnson; he does not present a *gentleman* to another *gentleman*. The name and the face are presented together. The presentation of two persons to each other over the telephone would not be less ridiculous. Instead of “words before ideas” or “ideas before words” let it be “words with ideas,” or “ideas with words.” No one ever catches many “fish.” The novice tries, but the experienced fisherman fishes for *perch*, *trout*, or *bass*.

Language may be used in training to think. Fine discrimination between synonyms, close attention to forms of expression, is a valuable mental exercise. Loose and careless expressions beget careless and inaccurate thinking. The teacher should insist upon the pupil’s use, both in speaking and writing, of words that convey exact mean-

Pupil's
Name.

Words with
Ideas.

Language a
means of
thinking.

ing. All colleges agree that the greatest weakness in their matriculates is in the proper use of words. And the tragedy of the whole thing is their failure to realize that the method of expressing thought has any vital connection with the thought itself.

Not so often as to make it burdensome, the student should be required to present themes, essays, or compositions, for the sole purpose of provoking thought. These should be judged by the teacher solely on the basis of originality of ideas and accuracy of expression. One who expresses a thought in a weak, disconnected manner needs training in thinking about meanings.

Original and independent thinkers are rare. They have always been rare. The greatest problem of the school is to increase their number. Morgan says, "The universe of matter is an exposition of God's thought. Man's highest prerogative is to think over again God's thoughts; their re-statement is man's science and philosophy."

The merit of themes to be judged by the originality and accuracy of expression.

CHAPTER XIII

THE LESSON

I. THE LESSON ASSIGNMENT

The divisions
of the lesson.

The lesson
affords oppor-
tunity for
close personal
acquaint-
ance.

The lesson in its broadest sense, includes the *Assignment*, the *Preparation*, and the *Recitation*. It presents the most interesting and important of all problems in education, and provides the greatest opportunity for that close personal contact of the teacher and the pupil that enables mind to influence mind. Every activity in every phase of education is important. Much may be done to enrich old conceptions and stimulate new ambitions through association in various ways—through the student activities, through social intercourse on the play-ground, and through the period of opening exercises of the day. Each of these agencies needs to be strengthened, encouraged, and intelligently directed. The wholesome effect of athletics is no longer questioned, nor is the inspiration and the uplifting influence of the chapel period in the least doubted. But it is through *The Lesson* that the best opportunity is afforded for the close personal touch of mind with mind by which hidden ambitions are disclosed, life plans unfolded, latent talents discovered, and visions of the higher life revealed.

It is said that "The greatest thing in the world

is a human life; the greatest work in the world, a helpful touch upon that life." Such is the opportunity given both to the teacher and to the student in the lesson. It is there more than anywhere else in the process of teaching that the foundation for character is laid. And it must not be forgotten that the building of character is the main purpose of the school. The opportunities afforded by the lesson carry with them commensurate responsibilities; therefore, a close study of each phase of the lesson problem is imperative, in order that the teacher may meet these responsibilities.

Foundation for character laid in the recitation.

The Lesson, as has been stated, consists of three distinct phases: (1) The Lesson Assignment; (2) The Lesson Preparation, or The Lesson Study; and (3) The Recitation. These three divisions will be considered separately.

The three phases of the recitation.

The Lesson Assignment.—In order that the class as a whole and each individual member thereof may be prepared to attack intelligently the lesson problem presented, certain definite principles should be observed in each assignment.

The first phase.

In the beginning, the teacher should understand fully the use of the term *Lesson Assignment*, and should know how to formulate a plan of procedure in accordance with the broadest interpretation of its meaning. To assign a lesson is to designate some definite lesson problem, whether this be a problem in science, in literature, or in history, upon which the student is required to employ all of the learning processes, that is, *acquisition, assimilation, and expression.*

The lesson problem or lesson unit.

The learning processes.

A comprehensive knowledge of the subject as a whole, of the text book used, and of all available collateral material, will aid the teacher in stimulating the interest of the pupil, and in creating an atmosphere of pleasure and enthusiasm in the entire class. Familiarity with the subject and its difficulties, and a keen insight into the capacity of the class and its needs sufficient to assign a lesson intelligently, command the respect of the pupils and inspire their confidence in the teacher's ability.

The teacher should have comprehensive knowledge.

A weakness in the work of many teachers is that of either ignoring or unconsciously disregarding the vital relation sustained by each lesson problem to the one immediately preceding it and the one succeeding it. It is not infrequently the case that the lesson for the day has been determined solely by dividing the number of pages contained in the text book by the possible number of lesson periods to be given to the subject. An equally serious defect, and one as prevalent in teaching, is the failure to consider the relation sustained by the lesson problem of one subject to that of other subjects in the curriculum. Such careless assignments result in unbalanced lessons, and their effect upon the pupil is unbalanced effort. At one time he is heavily overtaxed; while at another he finds his task mere child's play. To the irrational assignment of the lesson may be traced much of the dissatisfaction and discouragement that sometimes beset the strongest member of the class.

Incorrect ideas of lesson assignment.

Method of Lesson Assignment.—The method which should be followed in the assignment of les-

sons may be stated as follows: Assign lesson problems to a class by *subjects*; then, if necessary, state the pages of the text which treat the subject. The term *subject* is preferable to the term *topic*. *Subject* suggests more, and avoids confusion. Many experienced teachers interpret the term *topic* to signify the heading of paragraphs as given in the text books. It is not unusual for the teacher to announce hurriedly, with comparatively little or no forethought, as a lesson merely some definite number of pages or paragraphs. "For the next lesson, take the next twenty pages," "Take the next ten paragraphs," "Take down to the bottom of page sixty," "Take the next fifteen problems," are lesson assignments not unfamiliar to students in many schools of the present day.

The lesson should be assigned by SUBJECT.

The *subject* of the lesson problem and the *aim* of the problem should not be confused. The subject is the statement or *title* of the problem; the aim is the dominant *motive* for study. In each lesson problem a twofold aim is to be considered, that of the teacher and that of the student. The teacher's aim comprehends the larger and more general purpose of the lesson, while the student's aim is necessarily concrete and limited. For example, the subject of a lesson problem in Reading as assigned may be Eugene Field's "Wynken Blynken, and Nod."

The subject and the aim of the lesson.

Teacher's Aim: To help the children to appreciate the beauty of the poem, and to enjoy a lullaby in poetry as well as in music.

The teacher's aim.

Student's Aim: To read and enjoy a lullaby in poetry.

The student's aim.

In order that the student may grasp easily and readily the significance of the lesson problem, and be inspired to begin his task with the interest that insures success, the statement of the problem and its aims must be "clear, definite, short, and attractive." Lack of clearness and definiteness in lesson assignment has been frequently the cause of a serious crisis both in the work of the class and in the discipline of the room. Not only does the pupil fail to accomplish his task, but he becomes careless and inattentive, and often discouraged. The result is no less disastrous when, for any reason, the lesson subject fails to arouse the interest necessary to stimulate effort. It may occur that just at a crucial point when the pupil might easily be charged with a burning desire to know more of his subject, a cold, mechanical statement of the lesson problem may cool the ardor and enthusiasm which he already felt.

The use of the subject method of lesson assignment, as indicated in the outset, does not forbid all reference to pages and paragraphs. A student trained to rely upon the page or the paragraph may find difficulty at first in keeping in mind his specific lesson problem, and reference to page and paragraph may be of much assistance to him. Again, the teacher may wish to lay special emphasis upon some important principle or fact or some unusual viewpoint advanced by a particular author. Information as to the page and paragraph in which the material may be found saves the time and conserves the energy of the student.

The advantages of assigning a specific problem

Definite
statement
of the lesson
problem.

to a class, rather than following the time-worn custom of designating a definite number or pages or of paragraphs, specifically enumerating each, seem self-evident, yet a contrast between the two methods may prove valuable. A lesson problem assigned with clearly stated subject and aim furnishes the student a definite lesson idea which attracts and holds his attention. When it is assigned by pages and paragraphs, there is nothing to engage his attention but mechanical facts and barren symbols, which limit his investigation to one text book, and circumscribe his point of view to that of a single author. It is safe to add that in such case further research beyond the text book used as a basis of the work would be made by very few. On the other hand, the assignment of a lesson problem furnishes an excellent opportunity for the use of supplementary material, which adds zest to the study of the lesson assigned. Each student is then free to do the minimum of work required, or to attempt personal explorations into new fields for the discovery of new facts. A whole kingdom of knowledge and truth opens before him, and he realizes that it may be his through individual effort. The feeding instinct, hitherto active only in satisfying physical wants, becomes a powerful force that compels earnest search for truth for the gratification of mental hunger. By this plan an entirely new standard is presented to the student. He *must* do the required minimum of work. He *may* do the maximum of his individual capacity. This standard for the student solves at once for the teacher that most vexing problem of

Advantages of having a specific problem.

Encourages research.

The subject plan provides both a minimum and a maximum work for the student.

adapting the lesson to the class so that while ample provision is made both for the slow or poorly prepared pupil, and also for the bright, energetic student, so that he does not lose interest for want of work. To such a student the home, and the community also, furnish opportunities both for the gaining of knowledge material and for its application.

The subject plan provides for home work.

This plan provides for Home Work, that much debated question. Home work, it should be understood, however, does not mean necessarily the solution of problems in arithmetic, the learning of facts in history, or the mechanical reproduction of matter in reading. It is that phase of supplementary work in which the home and the school are brought into close connection. The study of the social viewpoint of church and society, of government and society, of business and society, has penetrated the almost petrified ideals of education and its purposes, and radically changed both the methods of instruction and the perspective of the student. A new note has sounded, and the problem of "school and society" has become an important member of the social study group.

Other problems provided for.

Parent and Teachers' Associations, Mothers' Clubs, and Fathers' Clubs, for the study of child nature and child needs, the introduction of the industrial and manual arts into the courses of study, and the maintaining of night schools and all-year round schools, are the outgrowths of this new viewpoint of the school as a real life experience. It is an important part of the school problem to connect the home and the school in such a manner.

Connection of home and school.

that the student himself will feel this vital relation.

The perspective of the student of the present day is entirely different from that of the student of the past. He no longer thinks that he will *some day* have need of the knowledge he is getting. He feels that he *is* learning, *is* enjoying, and *is* using each day every lesson he learns. "The present use" theory permeates the entire realm of school activities. Vague "school-room" ideas are discarded, and the present realization of the truths presented is emphasized. Book facts and rules are replaced by problems of home and life; those relating to the production and consumption of food supplies, to the distribution and expenditure of money, to the justice or injustice of laws governing social life. Through these, the student develops an appreciation of the genuineness of knowledge, and the value of its possession. Thus the school becomes his natural business center or laboratory, where he may go to work out his individual problems, while his home becomes the great store house which supplies the necessary materials for his lesson problems and opportunities for their application. As a result, the student feels not only that he *should* work or *must* work, but that he *may* work.

New perspective of the student.

The school a laboratory; the home a storehouse.

Application of the Method.—In its practical application, the method of assigning lesson problems to students may be adapted to suit all conditions of the school. A seeming difficulty in the use of this method in some subjects, especially in the lower grades, is the scarcity of material and

The scarcity of material.

the absence of definitely stated lesson subjects in the great majority of text books used. A second probable difficulty is that the problem, as often stated, involves elements too vague or too difficult for the particular class. A simple solution of the first difficulty is for the teacher to state the lesson subjects with the subdivisions necessary to make the *aim* of each conform to the needs of the particular class group; in assigning lesson problems in which there are several subdivisions, to state in the first assignment the large lesson problem, and then assign from day to day each subdivision of the work.

The large problem first: its subdivisions next.

Teachers of the primary grades, more than those of other classes, are confronted with the task not only of developing *subjects* and *aims* in the lesson assigned for their pupils, but that of providing practically all the material needed. For these grades are found very few texts that furnish enough material suited to the needs of the child. However, there is always an abundance of material for the teacher who is willing to pay the price of individual effort in collecting and classifying it.

The teacher must find material.

The following lesson problems are illustrative: for a reading lesson on Home Life, "*My Pets*;" for a Nature Study lesson on Home Life, "*How we grow our vegetables*." The sources of the material are abundant in the child's experiences, from which the teacher may develop her subject matter. Most of the text'books used in the intermediate grades have lesson problems definitely stated. The greatest difficulty is probably found

in the subjects of spelling, geography, and arithmetic. To use this method of assignment in spelling, it is necessary to group or classify the words as convenience or use may suggest; that is, if the text book used has only a miscellaneous collection of words indiscriminately compiled, the words may be classified as "home words," "simple words," "words ending in" *er*, etc. It is necessary also to divide the text book into sections, either by groups of pages or groups of exercises, suited to the particular class group. Such a grouping necessitates much previous preparation by the teacher, and such an assignment would require careful study and selection on the part of the student. For example, a lesson in spelling may be stated thus: "Select from Section A all words relating to home; from Section C, all words relating to business."

The subject plan of the lesson assignment applied to different subjects.

Spelling.

The use of this method in Geography and Arithmetic may appear at first impracticable, as the subdivisions of the larger groups do not seem to be clearly enough defined and sufficiently distinguished to furnish the definite lesson problem. Upon closer study, however, it is found to be as practicable in these as in the other subjects of the course. For example:

In Geography—The Cultivation of Cotton in the South. Student assignment: "The Manufacturing Industry of Cotton Goods."

Geography.

In Arithmetic—Lesson Study, "Interest and the legal rate." Student's Problem: "Which is a better investment, to purchase a house and lot for \$5,000, or to rent the same property at \$40 per

Arithmetic.

month, money being worth 10 per cent per annum?"

Rules for Lesson Assignment.—In assigning a lesson problem a serious question is, How much explanation shall be given to the student in order that he may begin his task with understanding and confidence? He must know something of the goal which he is seeking, and the necessary means by which he may attain it. The problem is *how much to give*, and still *not give too much*. Often a teacher, through elaborate explanations and enumeration of details, suggests that some paragraphs are important, some difficult, and some non-essential, before the student himself has had a chance for choice. By doing this the teacher dulls rather than whets the student's curiosity, and leaves little for him to do. The process of thought involves observation and comparison, selection and choice. The student should have the chance to weigh and consider, select and use. Only in this manner can there be any real mental growth for the student. He must "learn to do by doing."

Principles
for lesson
assignment.

Rules for
assignment
of the lesson

Some excellent rules to be observed in explaining a lesson problem are these:

1. Give only such explanations on the new lesson as will stimulate the student to personal research.
2. Do nothing for the student that he can do for himself without necessary waste of time.
3. State the problem and its aim briefly, yet clearly. Leave the student to interpret it.

4. See that the student understands his aim, and is conscious that it is *his*.

5. Give definite references for supplementary work, yet leave latitude for the student's own efforts in collecting additional material.

One of the faults of youth is inability to discriminate either in thought or in action. Question the average student of the present day on the more serious of our current problems, whether commercial, social, political, or religious, and the dearth of individual thought and personal opinion is surprising. Upon whom shall censure for this weakness be placed? Surely, not upon the student entirely. It belongs in some measure to the time-worn custom of the teacher's posing too much as authority, allowing himself to be regarded by the students as the ultimate source of information. The practice of explaining in the lesson assignment much that the student should work out for himself, is one of the serious defects of teaching in this manner. A habit is cultivated by the student of either consciously or unconsciously depending upon some one else to do his task, and of expecting his own negligence to be overlooked or excused.

Source of information.

Some reading teachers give in the lesson assignment the pronunciation of all new words, and thus prevent the student from feeling the need of the study of pronunciation. It is no more the duty of the teacher to give the pupil the pronunciation of the words in his reading, than it is to furnish him the solution of the problems in arithmetic. This false notion of helpfulness is not confined to the

Pupils should be trained to independence.

teaching of reading, language and spelling, but it is found among teachers of all branches of study. Every means should be employed to correct in students the habit of careless dependence, and in teachers the tendency to encourage it.

The Time for the Assignment of the Lesson.—

The time for making the lesson assignment should be carefully considered. Some conditions make it preferable to assign the next lesson-subject at the beginning of the period, others at the close; while in still other cases, it is a matter of little consequence when the assignment is made. If a new subject or a new division of work is to be undertaken, the assignment should be made at the beginning of the period. Needed explanations of the subject and of its relations to the work previously completed should be given at length and stated clearly, when the mind of the student is fresh and in a receptive state. Again, if the lesson to be assigned enriches and completes the lesson of the day, the proper time for assignment is at the beginning of the period, even though it may necessitate taking some time from the discussion of the day's problem. The use of supplementary texts, magazines, and other material, has become almost a necessity. The value of these is greatly increased by definite instruction as to their use; and as this instruction requires both time and thought, it can be given to the best advantage at the beginning of the period.

Proper time for the lesson assignment.

Time of assignment dependent upon nature of the lesson.

In many cases, the problem of *how* to study is much more serious than the problem of *what* to study; and this, too, must be considered in the as-

signment. When this condition is evident, the needed instruction should not be delayed until the end of the period, for it is of great importance that the student be taught how to approach his task. It may be that he is attacking his problem by the so-called "Muscular Method," and wasting much time at his task. He may be attempting merely to memorize the truths without grasping their significance. Into whatever error he may have fallen, he is in need of help. The teacher must be able to utilize his own experience and knowledge of mental processes in order to appreciate the student's difficulty, and to direct him in the development of keener perception and a more vivid imagination. It is here revealed that the teacher must possess both knowledge and training. He must know his subject well. He must know the opinions of the best authorities on the subject he teaches, and he must have an opinion himself. He must know the particular reason his subject is offered in the learning process, whether for the development of judgment, memory, feeling, or will. He must know, too, something of the general life problems, and be a man among men. Above all, he must know the mind of the student, and be able to give the needed help at the needed time. A teacher so equipped will realize that correct assignment is as important for wholesome mental growth as the administering of proper drugs to relieve physical ills; and when occasion demands, he will take the time necessary to give instruction as to how the student may expend his energy to the best advantage.

**The teacher's
need of
knowledge
and training.**

Sometimes there are reasons for deferring the assignment to the close of the recitation period. The lesson problem may be a continuation of a larger lesson group which does not need additional explanation by the teacher, and the time may be needed for the study of the lesson problem previously assigned. This, however, rarely occurs under ordinary conditions.

Again, the lesson of the day may furnish a basis for a better understanding of the one succeeding. In this case, time for assignment should be allowed at the end of the period. A teacher should always remember, however, that a recitation period, whether in a well regulated school system or a small one-teacher rural school should end at a fixed time.

Disregard of promptness and punctuality in this particular encourages irregularity on the part of the pupil towards his own obligations and responsibilities. The teacher should, therefore, allow the assignment of the lesson before the time to close the recitation.

If none of the above mentioned conditions exist, the lesson assignment may be made at the discretion or convenience of the teacher.

CHAPTER XIV

THE LESSON CONTINUED

II. THE LESSON PREPARATION

The second of the three divisions of the Lesson—The Lesson Preparation or Lesson Study— involves the whole problem of the art of study. For the student it is a question of “How to Study,” while for the teacher it is a problem both of “How to Study” and of “Teaching How to Study.” Each of these is a problem of great difficulty and great significance.

The second phase of teaching.

Very little attention has been given to the real art of study. Few books have been written on the subject, and very little time has been given to its problems. Discussions of this phase of the learning process and directions as to its practice have been for the most part limited to the negative side—“How not to Study.”

Incorrect Methods of Study.—There are many methods of study. The Chinese custom in which students line themselves around the room, face to the wall, and repeat the exercises verbatim in the highest pitch of voice, does not seem far removed in its crudeness from the audible whisper and lip movement used in study by students in many of our American schools. Parallel with these meth-

Methods of study.

ods is the plan of going over and over again five, six, or more times, the prescribed lesson, depending upon mere repetition and memory to fix knowledge. The number of times one has repeatedly "gone over the lesson" or the number of hours he has devoted to it, indicates little as to the amount of study he has given it. The learning processes are mental, not physical. The term "muscular method" already referred to, seems particularly appropriate to these ridiculous efforts at study.

The attempt is often made to study when the mind is in a state of passive attention, listless and inactive. In this condition of mind, the student, even though able to repeat the words of the text and to give explanations of the problems involved, loses practically all the kernel of the truth, for he can be only partially attentive to the work in hand. The effect of this kind of study is most hazardous. Mental loafing is detrimental to character; there is nothing which more surely destroys mental vigor and moral strength. Some of the results of this method of study are indecision, indifference, superficiality, and general inefficiency.

Probably the most common of all methods of study is that of mere memorizing. The student who habitually follows this plan fails to comprehend the difference between information and knowledge. He fails to see that facts within themselves are valueless. Histories, encyclopedias, and dictionaries are compendiums of facts, but they are cold, lifeless words unless spirit is breathed into them by the individual reader. There is no magic power in mere words, and the

Memory
methods.

Mental loaf-
ing.

Superficial
study.

student trained by this memory method has little besides words as the result of his effort. He knows some words and a few facts, which are mere skeletons of knowledge, and these he may repeat in a parrot-like manner, but he lacks the power to think, to feel, and to do. His stock of ideas is pitifully small. The reason for the prevalent use of this method of study is this: the student has been taught that the lesson requirement is the reproduction of facts. Accordingly, he depends upon a mere memorized lesson from the text to carry him safely through the ordeal of the recitation. If he can make excuse that his book is lost, the lesson torn out of his text, or that he did not know where the lesson is, his comfort both at home and at school is assured. Both the parent and the teacher accept without further question his excuse, and he feels no sense of obligation to regain lost opportunities or to reinstate himself in his class.

Another habit equally harmful to study is the plan of guessing. To the student who guesses, the relation of ideas has no significance. The process of reasoning does not enter as a factor in his study. He has no other thought than that of depending upon luck to determine the course of action or to meet difficulties as they occur.

Evils of
guessing.

These are a few of the improper methods of study in use at present in our best schools, among our best students, and tolerated by some of our best teachers. They are proof of the fact that knowledge of how to study is meager among teachers as well as among students. The evil

effects of these methods are evident throughout the student's career. While in school, he dislikes his studies, his teacher, and his school, and is known by his fellow students as a chronic grumbler. Having formed no stable habits of thought or of action, he must through his later life continue to depend upon others for guidance and direction, and he usually becomes known to the world as the "knocker" or the "pessimist".

Real Study.—"Real study involves the close application of the mind to a subject for the satisfaction of a consciously felt need." This feeling of mental hunger is not very common among students, even in the advanced years of work. A test of this point recently made in a group of college students disclosed the fact that a large majority of them has little conception of what is meant by *mental hunger*. Some students thought it absurd that one should be expected to enjoy a lesson, as he would enjoy a baseball game or a good book.

A consciousness of intellectual need is a dominant, compelling motive for study. It quickens observation, awakens interest, and prompts action. There are other factors necessary, however, to successful attainment. These are (1) careful examination of material for study, (2) selection of the correct elements through (a) comparison, and (b) the grouping of them in proper sequence into a sound conclusion. To complete the process still another factor is needed, that of using the knowledge material, without which it would be "mental debris", entirely worthless. No one may be said to study who does not feel the need to investigate,

Effects of
wrong meth-
ods of study.

Real study.

Motive for
study.

Factors of
study.

generalize, and apply. With these principles as a foundation, a systematic plan for study can be made that will provide an intelligent guide for both the student and the teacher in the solution of the problems, "how to study" and "teaching how to study" the assigned lesson problem.

The plan for the lesson study on the part of the student varies only in perspective from that of the teacher. Each plan is based upon the learning processes of acquisition, assimilation, and conclusion. The teacher's plan provides for the *presentation* of the subject material through the thought processes. The student's plan provides for the use of these processes in comprehending and applying the material presented.

The Preparation of the Student.—There is no doubt that with no lesson plan a student may "get his lesson", upon which he may "recite", in the commonly accepted meaning of the process. However, just as the scientist follows a specific guide based upon scientific principles, so the student, if he is to employ the mental processes in real study, must follow a plan based upon these processes. Any plan for study in order to be adapted to the needs of the individual student must correspond to the different activities in the learning processes.

The first step in the student's lesson plan is investigation of the knowledge material demanded by the lesson problem. There is involved in this process (1) the selection of the elements involved, (2) supplementing the material from personal experience and observation. In the selection of

The student's preparation.

Steps in the student's lesson plan.

specific elements in a problem the student develops the power of perception, of choice, and individual thought. He learns to look for material and to choose what he needs for the solution of his problem. This naturally leads to the use of supplementary material, both from his own store-house of knowledge and from outside sources. Many students leave school unable to accomplish the task of reading a book, comparing it with another, and giving a fair estimate of the value of each. Fully as many are unaware that to be well educated includes much more than to have scholarship. The student who is properly taught will be able to select and utilize material collected from every source. He has a respect for truth wherever it is found, whether in the pages of books, in the world of nature, or in the lives of men.

Effective use of supplementary material involves the process (1) of judging the worth of the material, and (2) of classifying or organizing it systematically. If this practice is followed in the student's preparation of the lesson, a habit of logical thought is established. The value of any material can be understood only through comparison with other material. A typical poem or scientific fact given the student in the text or by the teacher furnishes a standard measure by which the student is enabled to weigh, consider, and select the essentials from the non-essentials, and so to reach a correct conclusion for himself as to the worth of the poem, or other subject of thought.

**Supplemen-
tary ma-
terial.**

**No standard
of the worth
of material.**

One step needful to reach a broad generalization is open-mindedness, "willingness to wait till the evidence is all in." In hasty generalizing there is danger of reaching faulty conclusions. This is often the result of accepting statements without sufficient data upon which to base a conclusion. A student need not assume an attitude of doubt, but in his study he should seek reasons for believing or rejecting the statements considered. The student should have the courage of his convictions; he should be neither overbold through conceit nor a weakling through timidity.

Jumping at conclusions.

In the last step of the study plan, that of application, the student applies the test of actual experiment and thus proves for himself the worth of the knowledge gained. In this step, great latitude is given for the development of individuality, originality, and self-direction. There is probably no element of character in greater demand in social life or one more neglected in the schools than initiative—the power to start a movement and keep it going. Some one has said that, "our schools are training a thousand men to follow to one who can lead." Not until the school puts the proper emphasis upon the application of knowledge will the student become self-confident and independent.

Few being trained to lead.

No special reference has been made to the use of memory or of any other specific faculty of the mind. It is to be understood that learning involves the activity of all the mental processes of perception, memory, imagination, thought, feeling, and will. Without the activity of all these

in each step of the study plan, the observations will be superficial, the conclusions incorrect, and the application weak and faulty.

A logically developed plan of study is an effective means of establishing fixed habits of thought and action, whether for the teacher or the pupil. By such plan there is established a fixed standard by which one may test his efforts and determine his progress and learn what further aid he needs in reaching his goal.

Few students, even in our best schools, are trained to test for themselves their preparation of the lesson problem. In mathematics and other sciences they may presume that they have measured their progress when they know that they have solved perhaps ten out of twelve of the problems assigned, but usually the only test which they apply to their work is to determine whether they will be able to recite if called upon.

Through systematic study the student learns a life lesson of order in all things, whether the task be great or small.

An important consideration in systematic study is the time element. Students should be trained to use a program for study. It is not recommended that a daily schedule of study periods be made by the teacher for the student. Students should be trained to make for themselves the practical applications of the lessons and to determine for themselves the distribution of their time outside the study period. The excuse is often given by the student, "I didn't have time". A student should be able to estimate how much he

Plans for
study devel-
op good
habits.

Students
should be
trained to
test them-
selves.

Students
should pre-
pare sched-
ule for daily
study.

can do and how long he will need to complete each task. In schools for defective and delinquent children specific tests are made to determine each student's capacity and his progress, and a permanent record is kept. In common schools, however, neither teacher nor student seems to have advanced beyond the superficial standard of grades as a measure of a student's efficiency. This standard for the student is unsatisfactory for the reason that the grade merely represents to him the teacher's opinion, while it is only through realization of his individual capacities that he may himself perceive both his strong and his weak points and learn upon what he needs to intensify his efforts.

A most helpful means of estimating individual progress is a time schedule for each subject kept regularly from period to period, recording the date, the subject, and the time for preparation of the lesson. The following schedule card may be adapted to suit the individual needs:

Time Schedule Card.

Date	Lesson Subject	Time Required
Jan. 12	Surface and Drainage of the Southern States	30 Min.
Jan. 13	Products in general of the Southern States	30 Min.
Jan. 14	Production of Cotton in the South	45 Min.

**Suggested
schedule for
the student.**

It is not the rate of speed in thought and action which the student acquires from the use of such a card. He learns to perceive the problems in their

significant relations of greater or less difficulty, together with the proportion of time necessary to complete a given task. By knowing his own capacities, he can the more effectively become master of them. A student having finally established definite habits of thought and action through use of such a study plan, has equipped himself with the first element for successful research and progress.

Preparation by the Teacher.—Viewed by the inexperienced and untrained mind, the task of teaching ends with instruction, and the work of the teacher is confined to the schoolroom, with the time limited to only five hours per day, five days per week, and four weeks per month. Teachers have been held responsible merely for the dissemination of facts and judged as to their efficiency by the ability of students to reproduce them. Such reproductions by the students are regarded as the measure of the teacher's failure or success.

The work of teaching, however, comprehends more than mere instruction by the teacher and reproduction by the student. It involves, as well, the process of developing and training, without which instruction would be futile and reproductions impossible.

The task of the teacher is thus a three-fold one, (1) of instructing, furnishing knowledge material, (2) of developing and aiding the assimilation of this material, and (3) of training, for the purpose of bringing about skilful application of the knowledge gained. With such an ideal of the task

Teaching involves more than instruction.

The three-fold task of the teacher.

before him, no real teacher ever reaches the point where he thinks preparation is unnecessary. As his work is more responsible and far reaching in its influence than that of a student, so his preparation must be correspondingly more complete and the more carefully planned.

In order to interest the student and stimulate him to the greatest effort in making personal research, the teacher himself must be broad-minded and progressive. New views on all subjects are being advanced, new methods of instruction are being advocated, and the supplementary material to be found on every hand is constantly increasing in amount and changing in character.

Again, no two groups of children, though studying the same lesson problem under the same conditions, can be taught in the same way. Their "apperceptive bases", the understanding of new ideas through the old, are different. They demand different plans of approach and different illustrations. Each lesson must be adapted to the needs of each class.

Recognition of the individuality of the pupil.

The preparation of a teacher does not end with refreshing his old stock of knowledge, collecting new material, and adjusting it to the needs of the class. Without a well developed lesson plan as a part of his preparation, he lacks the compass which will guide him as he pilots the student in his search for truth. The lesson plan should be logically developed and suited to this particular class group. As has been explained, the lesson plan for the teacher differs from that of the student only in perspective. The teacher's view-

Kind of preparation of the teacher.

point is that of presenting the subject matter in such a way as to bring about the understanding and application of it. The lesson plan which he uses, like that of the student, must follow the process of thought.

The first step in the preparation of a lesson plan by a teacher, and in many ways one of the most important, is securing an abundance of material for the lesson problem. An excellent test of his ability as a real teacher is his success in obtaining, adapting, and putting into actual use among his students, an abundant supply of useful material.

Having the necessary knowledge material in hand, the second step is its grouping and classification for presentation to the class. It is necessary to organize the material so that it may always be presented from the view point of the student. This can best be done by a few large group topics or headings, together with whatever minor divisions the class needs demand. The larger topics are better suited to the student mind, and furnish more latitude to the teacher in adjusting the work to the immediate needs of the class group. One serious criticism made of students at the present time is their inability to organize and classify material. The practice which comes from following the plan just stated will aid the student in cultivating logical thought.

More specifically stated, the lesson plan should provide broad and general thought questions that provoke original thinking. The questions should bear upon the main divisions of the outline group

Preparation
of the lesson
plan.

First step.

Second step.

and serve to prevent digressions in the class discussions, and to stimulate the student to further research. It should be remembered that general questions only can be made prior to the class period. Specific questions relating to minor details must be made as occasions demand. A few general questions serve as strong cables with which to connect one large group idea with another and so preserve the sequence of the whole idea.

Kind of questions for the lesson plan.

Another important step in every lesson plan is the provision for general summaries which unify the entire lesson problem into one complete whole. Without this there is danger that the student may grasp only details of the lesson; while through the use of summaries the student sees the work from a higher vantage ground and the broad view serves as a stimulus to further study.

Provision for summaries.

A well developed plan for study contains a list of the supplementary material to be used—illustrations, poems, and stories (stating specific chapter and page in books or magazines), pictures, maps, charts, and plans for dramatization and constructive work. This is one of the most important steps of the lesson plan, as the care with which it is made practically determines the success or failure of the supplementary work of the class. Hardly can too much emphasis be given to the necessity of full detail and clear, direct references, so that delay will be avoided.

List of supplementary material.

The last point to be considered in the teacher's lesson plan is the provisions for the assignment of the succeeding lesson problem. As has been

shown in the study of lesson assignment, the statement of a lesson problem must have certain characteristics and be closely related to the lesson of the preceding day. It requires both time and fore-thought for the teacher to formulate a statement of a problem that will meet all the needs of a class. It is not safe to rely on the inspiration of the moment for a statement of the lesson problem, that possesses all the essential requirements. The subject of the lesson problem must be a well thought out and carefully worded statement if it meets all the needs of both teacher and student in the study of the succeeding lesson. Whether the written schedule of assignments shall include the details of each day's lesson plan, or whether the two shall be kept separate is a mere matter of choice.

The following lesson plans may be used as illustrations of the type which teachers should have for each lesson problem.

Plan No. 1.

TEXT:—Tarr's New Physical Geography, pages 55-58.

LESSON PLAN—YOUNG STREAM VALLEYS

(Mary E. Robb, 5th grade critic,
Illinois State Normal University.)

Teacher's Purpose:

1. To teach the characteristic features of young stream valleys, so they may be recognized and interpreted in any region.

Sufficient
time to be
taken for
making
definite plans.

Lesson Plan
No. 1.

2. To form the basis for a later comparison of young and mature stream valleys.
3. To show through a study of their economic importance, the nature of man's response to his physiographic environment.

Unit of Instruction:

Young Stream Valleys.

Organization of Subject Matter:

1. Characteristic features of young stream valleys.
 - (a) Broad, low, indefinite divides.
 - (b) V-shaped cross-section of valley.
 - (c) Many falls and rapids.
 - (d) Many lakes, usually shallow.
 - (e) Few and short tributaries.
 - (f) Steep gradient.
2. Their economic importance.
 - (a) Advantages to man—
 - (1) Power developed from falls;
 - (2) Lakes used as commercial highway.
 - (b) Disadvantages to man—
 - (1) Navigation interrupted by rapids and falls;
 - (2) Valley difficult to cross by roads and railroads.

Pupil's Problem:

1. What are the characteristics of a young stream valley?
2. Of what use is it to man?

Assignment: Tarr: New Geography, page 55-58.

1. Figure 65, page 52.

Which of the four diagrams represents a

river that has accomplished most in lowering the surface of the land? Study the changed shape of the valley in each diagram.

2. Figure 71:
How is the river changing its banks?
3. Figure 76, page 55:
What do you notice about the divides in this diagram?
Why are lakes present?
4. Read the "Life History of a River Valley", pages 54 to 57, and study the illustrations. From this study be able to name five things about such a river valley.
5. How will such a valley affect commerce?

Preparation:

What is the purpose of a river? How does it accomplish its purpose?

Presentation:

Questions to develop points in organization, discussions of illustrations and diagrams in the text, with use of as much outside illustrative material as possible to cover problems raised in the assignment.

Plan No. 2.

SUBJECT: Solid Measurement.

TEXT: Sutton and Bruce's Arithmetic, pages 97-99.

LESSON PLAN

(George N. Cade, 8th Grade Critic,
Illinois State Normal University.)

Teacher's Purpose.

To lead the pupils to see the different cubical units which make up a rectangular solid.

Unit of Instruction.

Rectangular Solid.

Organization of Subject Matter.

1. Unit solid. Preferably a cubic inch.

1. Length
2. Width
3. Thickness.

2. Rectangular solid.

- (a) 1. Length 3 units

2. Width 1 unit

3. Thickness 1 unit

- (b) 1. Length 3 units

2. Width 3 units

3. Thickness 1 unit

- (c) 1. Length 3 units

2. Width 3 units

3. Thickness 3 units.

**Lesson Plan
No.2.**

Pupil's Purpose.

To answer questions in the assignment.

Assignment.

How many inch squares may be placed on a rectangular surface 1 in. x 1 in. so as just to cover it? 2 in. x 1 in.? 3 in. x 1 in.? 4 in. x 1 in.? 4 in. x 2 in.? 3 in. x 3 in.? 3 in. x 2 in.?

Study carefully questions 1 to 11 inclusive in article 161 on page 97 of your text.

Preparation.

What is a rectangle? What is a square?
How do we find the area of the square?

Presentation.

How many inch squares are required to cover one row of squares in the three-inch square?

How many such rows on the three-inch square? How many square inches on the three-inch square?

Now instead of using squares, use inch cubes, and tell how many may be placed so as to cover all the squares in one row on the three-inch square? On two rows? On three rows?

How many cubic inches are required to cover the square. Give dimensions of this rectangular solid. We can tell this one layer of unit-cubes. Suppose we make it two inches high, how many such layers? How many unit cubes? Three layers? Now give dimensions of solid. (3 in. x 3 in. x 3 in.) How many edges has this solid? Corners? Faces? Dimensions of each face? (Use inch squares and iron cubes).

Plans No. 3 and 4.

In working out these model lesson plans, the following ideals have been constantly kept in mind:

1. To do away with the erroneous idea, which too often prevails, that a lesson unit is confined

to one recitation, but rather to stress the fact that more often it extends over several days.

2. To simplify the lesson plan, and reduce it to such a form that it may not only be comprehended by the average normal school senior, but also followed out in the actual teaching process after it is written.

3. To so word all questions as to promote active thinking on the part of the class.

4. To provide for a motive for thinking by having a definite problem in mind about which the efforts of the students are centered.

5. To emphasize the fact that the practical use or control of knowledge is the final test of the efficiency of teaching.

Plan No. 3.

LESSON UNIT PLAN IN GEOGRAPHY

GRADE 7

TIME: 2 DAYS.

THE COMMERCIAL IMPORTANCE OF GREAT BRITAIN.

(From the Training School of the
North Texas State Normal College.)

(Maude L. Fiero.)

Teacher's Aim.

To so present the subject that the students will more fully understand: (1) the general law governing commerce, (2) its importance to every nation, state and community, and (3) how each student may aid in improving such conditions in his own country and state.

Lesson Plan
No. 3.

Pupils' Problem.

To find out why Great Britain has become such a power in the commercial world, and how other countries may profit by her experience.

*Subject matter.**Preparation.*

1. Materials used.
 - (a) Map showing location of Great Britain, climate, etc.
 - (b) Pictures of great mining and manufacturing centers — her harbors, canals, etc.
 - (c) Kipling's "Recessional".
2. Special points in review.
 - (a) Great Britain is an island empire, located Northwest of Europe, in the Atlantic Ocean. It lies between two great continents, and has water communications with all.
 - (b) Her climate is mild, and her numerous ports are free

*Method**Preparation.*

1. Assign on previous day a general review of Great Britain as to surface, climate, industries and population.
2. Have a student put on the blackboard an outline map of Great Britain, showing coal and iron fields, ports, and rivers.

from ice all the year round.

(c) Her great coal and iron mines are within easy shipping distance of all ports.

(d) Although her population numbers 45,000,000 people, Great Britian raises little food stuff.

(e) As a manufacturing nation, she leads the world.

(f) Her colonies are to be found all over the world.

(g) Her navy is twice as strong as that of any other nation.

3. Use world map also.

4. Pivotal questions to develop the preparation.

(a) What do you consider the most significant features about the location of Great Britian?

(b) What effect does the climate of Great Britian have upon the condition of her ports, rivers, and canals?

(c) Study the map, and see if you can pick out the most significant fact about the location of coal and iron fields.

(d) Compare Great Britain's rank as a food producer with her rank as a manufacturing nation. Account for the difference.

(e) Ask the most important thought question you can about the population of Great Britain.

(f) What relationship do you think exists between Great Britain's navy and her colonies?

Throughout the preparation, opportunity is given for discussion on part of the class.

(g) Have a student read "The Recessional".

Presentation or main body of the lesson.

Presentation—or main body of the lesson.

1. Text: Tarr & Murray's Geography, pages 275-6.
 2. References: Encyclopedia Britanica Volume 27, pages 600-604; Current Magazines: Atlantic Monthly—May, 1914, pages 608, 609; Literary Digest—February, 1914, page 352;
 3. Other Materials: Trade route map of the world. Railroad Map of England, Europe and the United States. Blackboard maps. Pictures.
 4. Leading points to be made in class.
 - (a) Because of her location between two great continents
1. Have trade route maps on display.
 2. The references mentioned in subject matter will be assigned to individual pupils for reports.
 3. The student will be asked some problems in regard to British commerce which they consider important.
 4. Pivotal questions:
 - (a) What do you consider would be a good problem for us to attempt to solve

Great Britain naturally becomes a link in trade.

(b) Because her ports are always open, trade is never interrupted by climatic conditions (except heavy fogs).

(c) Surrounded by water, with no point more than seventy-five miles from the coast, her people have always been natural sailors.

(d) In past centuries, because of a bold and adventurous spirit, and a desire to increase commerce, Englishmen have pushed into all parts of the world and established colonies.

(e) The soil, not yielding enough food stuff and raw material of various kinds, but rich in coal and iron, the British people have turned to manufacturing, ex-

regarding British commerce?

(b) In what way does Great Britain's location affect her commercial importance?

(c) Discuss the advantages offered by her open harbors.

(d) How do you account for the bold adventurous spirit of English people? How would this spirit affect their commercial life?

(e) What relationships exist between Great Britain and her colonies?

(f) Great Britain has rather unproductive soil, rich coal and iron mines, good water routes, and colonies rich in raw materials. (Make a diagram of this on blackboard.) To what industries did her people naturally turn? Why?

changing manufactured articles for raw materials.

(f) This trade has been stimulated by earnest protection on the part of the government. Wherever the British merchantman goes—he has the protection of the British navy. Even in this great war (1916) (which many claim is largely commercial), British trade is but little disturbed, except with her enemies.

(g) Rivers, harbors, canals, railroads and roads are given special attention. Everything is done which will tend to stimulate commercial activity (at least it is attempted).

(h) To-day, British merchants lead the world in trade, and Great Britain has long been recognized

(g) What has Great Britain done to stimulate trade?

(h) Compare England's rank in the commercial world with her rank as a civilized nation.

(i) Without this commercial development, what might Great Britain's rank be to-day?

(j) Looking at your world map—select some great nation which presents the most striking contrast to Great Britain. (It is assumed that Russia ultimately be selected.)

(k) Account for these great differences in commerce, industry and civilization.

(1) Study the map of the United States of America. What reason have we for believing that the United States will

as one of the most enlightened and civilized of nations. Without her commercial life, England would be an insignificant country, instead of the center of the civilized world. For with the goods she buys come ideas, manners, customs and ideals from other people.

(I) In comparing Great Britain and Russia, we find that though much richer in natural resources, Russia's commerce is insignificant, just as her ports are fewer, her internal means of transportation poorer by far, and her people as a whole ignorant and provincial.

(j) On the other hand, is the United States of America. Located between Europe, Asia and South

eventually excel Great Britain commercially, and otherwise?

It is assumed that many questions will be asked by the class; the teacher, by the aid of these big, inclusive questions, merely guiding the students toward logical and definite conclusions.

(m) Why are we justified in saying that commerce means wealth and progress?

(n) What are the main conditions which affect commerce?

America, with thousands of miles of coast line, rich in natural resources, with fine rivers, numerous railroads, she is fast assuming a leading place in commerce. Her people are rich, her universities and schools prosper. There is a marked tendency toward broad mindedness, as shown by her attitude during the war.

5. Great truths to be emphasized:

(a) It is safe to conclude that commercial development means increased wealth and progress along all lines, because:

(1) It brings people into contact with one another, and causes circulation of new ideas, ideals and knowledge.

(2) A non-commer-

cial nation is almost always of an ignorant, bigoted, unprogressive type.

Conclusion.

The application or using of the knowledge gained.

1. What is true about commerce of nations is also true of state or community commerce.
2. The County of Denton, Texas, if it is to be progressive and wide awake, must have good roads, well cultivated soil, and active commercial life.

Conclusion.

Let us assume that we are the voters in the County of Denton. We want our county to be progressive, wide awake, and wealthy.

What conditions will we work to establish?

Why is it worth while for the State of Texas to spend so much money on the port of Galveston?

If the building of a good road in Denton County would increase your taxes, would you vote for it?

Why ?

Plan No. 4.

LESSON UNIT PLAN IN READING

GRADE I—DATE

The Gingerbread Boy

(From the Training School of the North Texas State Normal College.)

(Mrs. Cora Martin.)

Teacher's Aim.

Through interest developed in the story, to

teach the new words which it contains, thereby increasing the child's reading vocabulary.

Pupils' Problem.

To recognize the new words in order to be able to read the story.

Subject matter

1. Introduction.

Conversation about cakes cut in various shapes, which the children have seen or have had made for them.

Method.

1. Introduction.

Did your mother ever make you any little cakes and cut them out like cats, dogs, or any other animals? Tell us about them. Perhaps you have had some cut in the shape of a little boy. (Lead the children to express themselves freely.)

I know a story about a little gingerbread boy—such a funny little boy cut out of gingerbread dough! (Some child will ask for it.)

2. Presentation.

(a) The story of the Gingerbread Boy.

(b) Dramatization.

A comparison of the different characters.

2. Presentation.

(a) Tell the story in as interesting manner as possible.

Pivotal questions:

Do you like it?

A comparison of the different ideas.

(c) Reading.

Material used in the printed story on a chart for the first lesson, then sentences, phrases and words contained in the story are printed on cards, and these are used in connection with the chart.

What part do you like best? Why do you like that part best?

(b) Could you do as the gingerbread boy did? Show us! Perhaps some one can show us how the old woman did, and tell us just what she said. (Call for ideas as to the actions of different characters. Discuss these, and let the children decide on the best ones.) Would you like to show how these characters acted all together, just as the story gives it? (Let the setting and the action be given by the children. Occasional suggestions may be necessary to preserve organization.)

(c) Here is a chart which has this story printed on it. If you could only read it,

you might give mother a nice surprise some day by asking her to come to school to hear you read a story. Why, yes, of course, we can learn to read it! Would you like to begin? The story is then read by the class, the teacher pointing to the words as they read, being careful to "swing it along" to get correct expression, and not stop the pointer at each word. Volunteers are then asked to read the first sentence, the next, and so on through the story. After this phrases are pointed out, and finally single words.

3. Application.

Cards with sentences, phrases or words from the story.

3. Application.

At the beginning of the next lesson on this subject, the cards are given the children, and they

New combinations are made from phrases contained in story. These are printed on cards.

discover they are parts of the chart story. They then match them with sentences, phrases and words on the chart. They then arrange their cards according to sequences, and read the story from them.

Later, new combinations are made, and the sentences read, which is a final test of the child's power to use the knowledge gained.

Plan No. 5.

TEXT: Elson's Grammar School Reader—Book Four.

SELECTION: The Voyage—by Irving

Beginning on page 132, from beginning of selection to line 24 on page 135, or eight paragraphs. The two stanzas at the beginning were read, but not counted in the eight paragraphs.

(From Illinois State Normal University)

Teacher's Purpose.

1. To lead the pupils to appreciate the incidents of the voyage, which affected Irving; how they affected him; and in what man-

ner these experiences prepared him for the land trip.

2. To improve the pupils' control of the mechanics through drill exercises.
3. To prepare the pupils through the realization of 1 and 2 to read well.

Unit of Instruction.

The Voyage, by Irving.

Organization of Subject Matter.

- I. A sea voyage as a preparation for visiting a strange continent.
 1. Absence of worldly scenes.
 2. Vast space of waters.
 3. Vacancy.
- II. Contrast of land and sea trip.
 1. Land trip.
 - (a) Continuity of scenery.
 - (b) Succession of persons and incidents.
 - (c) "A lengthening chain."
 - (d) Trace it link by link.
 2. Voyage.
 - (a) Consciousness of being cast loose from settled life.
 - (b) Sent adrift upon a doubtful world.
 - (c) Uncertainty of return.
- III. The author's own feeling.
 1. Closed one volume of the world.
 2. Changes might take place.
- IV. The author spent time meditating.
 1. Musing on summer sea.
 2. Gazing on golden clouds.

3. Watching undulating billows.
 4. Watching animals at sea.
 5. Reflecting on all he had read.
- V. The sight of a distant ship.
- VI. The sight of wreckage.
1. Evidences of loss of life.
 2. Thoughts that came to his mind.

Pupil's Problem.

To solve the problems of the assignment.

Assignment. Page 132. The Voyage.

Pronounce and define these words: Preparative, imperceptibility, continuity, interposes, palpable, precarious, reveries, undulating, conjure.

How does a sea voyage prepare one for a visit to a strange place? Name three such conditions.

In the contrast of land and sea trips, name three conditions in the land trip not in the voyage, and three in the voyage not in the land.

How did the author feel when the last traces of land faded from his sight?

Name some ways the author spent his time on board?

How did the sight of a distant ship affect him?

Why do you think he saw the usefulness of the ship more vividly than ever?

What thoughts came to him when he saw the wreckage?

Preparation.

Experiences of pupils in either land or sea trips or both.

A teacher's year book of lesson plans, modeled after this standard, is of incalculable value to him in his instruction, and of much interest to the class as a general summary of its work throughout the course. The impossibility of making daily lesson plans of such elaborate detail as those given here is obvious. The necessity of having them made, however, is felt as not less imperative. The solution of the difficulty can be met only by the teacher's having his lesson plans for a period of a week, a month, or a term already developed. In this way, the preparation needed daily would be only a review of the lesson plan in which needed adjustments could be made. It would greatly increase the efficiency of the teachers, and the success of their work, if school boards and superintendents would consider the necessity of this step in the teacher's preparation, and announce at the time of his election his specific assignment of work.

The teacher's
year book
of plans.

CHAPTER XV

THE LESSON CONTINUED

III. THE LESSON RECITATION

The third stage in the development of the Lesson, the Lesson Recitation, is probably of more general interest than either the Lesson Assignment or the Lesson Preparation.

The Recitation.—In its original meaning, the term recitation signifies simply “the act of saying again.” The literal definition of the word may explain in some measure the pernicious custom that has been so tenaciously fastened upon the teacher and student in this most important school exercise. This interpretation of the recitation process makes no provision for the exercise of any mental activity save that of memory; so interpreted, a recitation consists merely of having students mechanically repeat the words, verbatim, from the text book. To judge a student by his ability to repeat the thoughts of the text, as a pure memory exercise, is not far removed from the old understanding of the recitation idea. It is possible for a student to state and give the analysis of problems in arithmetic, of sentences in grammar, and of causes and effects in history, and for the act to be still a mere memory process.

The third
phase of the
lesson.

The evil effects resulting from such exercises have prompted a persistent search for a specific remedy. As a result, there has been given in the last two decades more real study, especially by teachers, to this phase of the Lesson problem than probably to both of the others combined. The discoveries have been most gratifying and the progress no less marked than that made in other fields of research. A new meaning has been given to the word, and a wider scope to the process. "The Recitation" no longer signifies to the student merely "saying again" dull facts culled from books, but it suggests opportunity for interchange of ideas and the results of research."

Meaning of
the recitation.

The recitation period is no longer considered merely a testing period, but is in reality what it has been called—a "thinking period".

The Purposes of the Recitation.—One of the most important purposes of the recitation is suggested by this change of view—that of stimulating the self activity of the student, the power of independent research, and a keen critical insight into new truths. No recitation is complete that fails in establishing in the student such habits of thought.

Purposes of
the recita-
tion.

A second purpose of the Recitation is the development of the student's ability to "see" and "know" or to "perceive relations and draw conclusions." It is expected of every student that he be able to meet the "knowledge test" in the fullest sense. The ability to quote formulas, to recite data, or to explain the mysteries of science merely suggest skill in training—the gathering of

To develop
self activity.

To develop
the reasoning
power.

knowledge material, an abundant supply of information. To complete the test, he must be able to reach a conclusion. The student of the present *must* answer the question, *What do you think?*

A third purpose of the Recitation is that of training the student into a proper appreciation of the relation which should exist between himself and his fellows. No better opportunity is afforded for developing a wholesome respect for the opinions of others, or a due consideration for their rights. Such characteristics as courtesy and kindness inevitably follow such training and become established habits in the student. The real aim of the Recitation, then, is the development of character through the establishment of correct habits of thought and feeling, purpose and action.

More specifically stated, the various purposes of the recitation may be outlined as follows:

1. To test the knowledge of the student, that is, to ascertain whether he does or does not know the subject.

2. To correct the errors of the student, and explain the difficulties which he has met.

3. To cultivate skill in original expression through increased vocabulary and fluency of speech.

4. To stimulate interest in study through direct contact with teacher and fellow students.

5. To cultivate habits of thought through a knowledge of how to study.

6. To develop in the student individuality and self reliance through application of the general truths of the lesson.

To develop
the social
instincts.

Character.

Summary of
the purposes
of the recita-
tion.

The Rules of the Recitation.—In order that all the purposes of the Recitation may be fulfilled, proper conditions of study are essential; and to obtain these conditions, there are certain rules which must be observed, most of which relate to the problem of how to arouse interest and hold attention. Solving the problem of attention practically ends the difficulty. Attention is the focal point of mental activity. It is said to be the very “heart of consciousness”. It is the indispensable attitude of mind necessary to the reception of ideas. It is safe to say, when there is no attention there is no new knowledge gained. Attention is prerequisite to interest, and interest fosters attention. They are complementary attitudes of the mind. The necessity of the case determines the degree of interest, and interest holds the attention. The kind of attention which a student can give to a subject indicates something of his intellectuality. Power to give close individual attention is a characteristic of a trained mind, while listless, passive attention indicates dreamy indecision and lack of mental vigor.

Rules of the recitation.

Interest always necessary.

Attention necessary to interest.

The general rule for the recitation should be: **General rule.** Every student attentive to the matter in hand. To secure such attention on the part of the class, the following rules aid materially:

Conduct the lesson for the benefit of the entire class. If a question is asked either by a student or teacher, it should be addressed to the class as a whole, and then a particular student designated to answer the question. When a student has been designated, the question belongs to him as a right,

until he has had fair opportunity of answering uninterrupted by teacher or other student. All explanations of problems, whether at the board or at the seat, all discussions of maps or themes, should be given for the benefit of the entire class, and not for the teacher.

Require students when reciting to rise and address the class. Incoherent answers or exact repetitions of facts from the text book destroy attention and cultivate listless inactivity. The effect on the student reciting is equally disastrous. The student should be expected to contribute to the interest, alertness, and enthusiasm of the class by an energetic discussion of some vital point.

Teach the student to give original illustrations of the lesson, instead of repeating those in the text. Experience shows that students rarely, if ever, get beyond memorizing the illustration stated in the text, and repeating it often verbatim. Such practice is not tolerated in our daily lives, where an apology is usually offered for the repetition of a story, even though it is apt and full of humor.

Allow no promiscuous note-taking during the recitation. Students should be trained to "pay attention and listen," and one can give attention to only one thing at a time. The practice of note-taking has been much abused, and there is a tendency among students to rely too much on their note-books. Teachers often spend entire recitation periods dictating notes which the students are required to copy.

Formalities of the recitation.

Original illustrations should be required.

Taking and making notes during recitation, a waste of time.

This is a waste of time and energy, both for the teacher and the student, and it has no value except as an exercise in dictation.

Use abundant illustrations. The quantity of suitable material on every hand makes it possible to connect the new or unknown facts with the familiar and the known. The use of illustrations suggests the variety of appreciation of the ideas presented, and thus attracts and holds the attention.

Use of
illustrations.

Introduce something new or different to give variety to the work. Dull monotony is destructive to mental activity. Children in poorly taught kindergarten schools are usually entertained and amused, rather than trained and instructed. The result is a restless inattentive child wholly incapable of concentrating his mind upon one thing for any length of time.

Forms of the Recitation.—The terms “Forms of the Recitation” and “Methods of the Recitation” should be understood. The “*Forms* of the Recitation” relates to the manner in which it may be conducted. There are two principal forms, the *oral* and the *written*. “The *Method* of the Recitation” means simply the mode of procedure. There are three principal methods, the *lecture* method, the *interrogation* method, and the *developing* or *conversational* method. The nature of the subject and the lesson aims determine to some extent the form of the recitation. In mathematics and science, the recitation is for the

Forms of
recitation.

most part conducted in written form, while the recitation in history and literature is usually conducted orally.

Each form has value.

There are some definite lesson values in each form of the recitation. Each gives excellent training to the student in self expression, easy self control, and self direction. Both forms have a place in each subject of the entire course and should be employed.

The written recitation.

There has been developed among teachers and students the idea that the written recitation in some way exceeds in importance the oral recitation. The result is seen in the pernicious habit of cramming, which has practically destroyed the real value of written work. This view on the part of the student is caused partly perhaps by the teacher's placing undue emphasis on the value of grades made on the written work. In the written recitation, the student develops expression through written form. He learns to think while using his pen and to use it with ease. Rapidity and clearness, the style of expression, the grammatical form of his sentences, the correct use of terms and the spelling of words, all enter as elements into the written recitation, whether it be in English or other subject.

Habit of cramming for written work vicious.

Values of written work.

An important result of written work is that it quickens the mental processes of the student. He learns to think quickly, and to express himself more readily on paper. He is forced to omit the trite text book illustrations, to organize his material in logical sequence, and to think in logical order.

In writing the student learns to use logical order.

The written recitation also furnishes the student an opportunity for the discussion of larger thought units as a whole instead of confining him to the discussion of details characteristic of the oral recitations. It is possible for one to collect numerous details and to be conversant with them, and still have little knowledge of the work as a whole. Another advantage of the written lesson is that each student is given opportunity on the lesson as a whole.

Opportunity for viewing the lesson unit as a whole.

With these definite purposes kept in view, the written lesson furnishes an excellent basis for the student's own estimation of his progress. The comparison of each lesson with the one preceding marks the degree of progress. For this reason, all written work, with the date specified, should be preserved either by the teacher or by the student, from which an estimate may be made when desired.

Opportunity for determining progress.

Through the oral recitation the student should develop skill both in listening and in oral expression. Conversation is said to be a lost art. If this be true, the school has had no small part in bringing about this result. The practice of training students to wait till called upon by the teacher to give any expression of thought has a tendency to destroy spontaneity and initiative, and to engender a passive, receptive attitude of mind.

Advantages of the oral recitation.

In order that the student may be able to enter into the discussion of the lesson problem, and contribute something new to what has already been given, the ear must be trained to catch ideas as they are given, the memory to retain and the judg-

Training to think quickly.

ment to weigh and consider them. Only one of three explanations can be given for a student's repeating facts or statements which have already been given during the recitation. He has failed to give attention, his memory is poor, or his general conception of the problem vague.

During the oral recitation a student is brought face to face with his teacher and fellow students, and through spirited exchange of ideas is stimulated and encouraged to believe in his own powers "to be" and "to do".

The oral recitation cultivates the ability to think and speak in public. As it is commonly conducted, this advantage of the oral recitation is practically lost, as the student usually addresses the "answer" to the teacher, often speaking too low even to be heard distinctly by him. Students should rise and address to the class whatever they have to contribute to the lesson recitation.

Ease both in action and thought results from continued practice. The student by practice forms habits of thinking logically and clearly, and speaking effectively in public.

The test of efficiency is not only in being able to see, know, and do *well*, but also in being able to do *quickly*. Many men can give good counsel if long time is allowed to weigh and consider. The well educated man is one who can command promptly and accurately any desired information, and apply it efficaciously.

The Methods of the Recitation.—No other problem in education has received more study than Methods of the Recitation. To the teacher it is a

Training to
speak in
public.

Test of
efficiency.

Methods of
the recita-
tion.

matter of constant difficulty and concern how to study, plan, and present the subject matter to the student. Some one has said that "the greatest discovery of the nineteenth century is the child". The careful study of child nature, of apperception, of inductive and deductive processes in learning all have made him the pivotal figure around which all the problems of education revolve.

Teachers should know something of the Methods of the Recitation which have characterized the teaching of the past. A knowledge of past methods enables him to better understand modern methods of instruction.

It is interesting to note the early mode of the recitation, in which the "instructor" taught only one student. This was commonly practiced among the Greeks and Romans. The class group idea, or the simultaneous method, followed the individual mode of recitation.

Originally the "instructor" was a learned doctor who taught the "scholars". There were then few libraries and books, and all "learning" was transmitted by word of mouth. Thus the name "lecture" became attached to this method of the recitation..

It is readily seen that though giving to the student an opportunity of learning from the best authorities, the "lecture method" violates the law of self activity by regarding the student as a passive recipient, and disregarding the principle of apperception; that is the use of past experiences in developing new truths.

**The lecture
method.**

The introduction of the law of self-activity into the method of instruction, developed the *Method of Interrogation*. It is intended by this plan to bring the students into some definite active relationship to one another in the recitation period. This method of instruction has been variously interpreted and applied. The "Socratic Method", so called from the great Greek philosopher, Socrates, who was an "educator" rather than an instructor", is accepted as the most perfect method of interrogation, as he employed in his method the principle of apperception. He taught that education was a process of "leading out" and thus of developing the activities of the learner rather than a process of "pouring in" and filling a void. His plan was to begin with what the student knew, and through questioning, to lead him to the truths he did not know.

There are two forms of the method of interrogation, popularly known as the *Question and Answer Method* and the *Topic Method*. In each of these, it is the practice of the teacher to suggest the question or topic, and for the student to give the answer, either directly or through discussion. The two methods differ very little except in the time given to the student for giving his answer or for developing the topic.

Questioning is a difficult art. Many teachers resort to specific plans or devices for calling on the student. Some call the students in alphabetical order, others use modifications of this method with a card system for the class. When this method is used, the student soon learns the order

The method
of interroga-
tion.

The question
method.

The topic
method.

The art of
questioning.

in which his turn comes to recite, and he can prepare for the very day and often for the specific paragraph or problem upon which he will be required to recite. This method is a direct violation of the principle that each student should feel personally responsible for all class work. It disregards the value of self activity and leaves the student dependent upon the teacher.

Strong pivotal questions are necessary in every recitation. They are a test of one's skill, whether he be student or teacher. The questions are of three classes—those which test the knowledge of the student, and are introduced by *who*, *what*, and *where*; those which test the understanding of the student, and are asked by *how*, and *why*, prove, etc.; and those which test the feeling and will, the power to *feel* and the power to *do*. Each form of question, when well directed by the teacher, may be used to stimulate the mental activity, rather than merely to prompt a correct answer to the question.

**Nature of
proper
questions.**

In order to stimulate interest and to promote activity in the questioning period of the recitation, the following rules should be observed:

1. Ask the question; then designate the student who is to answer it. Never address the student before stating the question; as, "Miss Jones, please tell me," etc.

**Formalities
of question-
ing.**

2. Do not call upon students in alphabetical order, or in any other fixed order. When fixed groups are made, the fact is soon detected, and those who are inclined to shirk will prepare themselves accordingly.

3. Ask only large, pivotal questions, as far as practicable. Train the student in his study to formulate questions on points he does not comprehend. Use questions prepared specifically for the particular class group. Most text books in use at present either omit questions entirely or place them at the end of the chapter. There is a tendency, however, for students and some teachers to rely on the headings of the paragraphs to serve in place of the questions which were formerly stated.

Ask questions that will test the knowledge of the student; as, "What conditions led to the fall of Rome?"; those that will test the understanding; as, "What would have been the effect on the South had New Orleans been the port of entry"; those that will test the powers of feeling and will; as, "How would you feel?" and "What would you do?"

The practice of teachers in asking questions which could be answered by Yes or No, or by the one suggestive word omitted in the question, always results in a small speaking vocabulary.

It is said that the *reading* vocabulary of the average person is about twenty thousand words, while his *speaking* vocabulary is only about five hundred.

Of all methods of conducting a recitation the one probably best known and most universally used is the *Text Book Method*, which developed as an attempt to break away from the early lecture method of instruction. The use of the Text Book Method is not a great improvement upon the Lec-

ture Method. It is supposed to provide for greater self activity. This, it may or may not do. It depends largely upon the teacher as he directs the class. With many teachers, students memorize the text and report to the recitation period to exploit what they have learned by answering questions stated in the text. With other teachers, the students are trained to interpret, memorize, and then repeat the thought of the text. While this is a step beyond the earlier application of the text book method, yet even in this the work of the student is limited to culling from the text the meager knowledge material contained therein, while the work of the teacher is merely to test the student's acquisition of this material. This misconception of the purpose of study proves most disastrous. The knowledge gained consists mostly of memorized facts with perhaps ability to use them in the original form or setting. The student has no conception of any possibility of new adjustments, combinations, and modifications to enrich the old, to bring about something new. The effect on character is no less serious. Having a false standard of attainment, the student attempts outward perfection in *form* of knowledge rather than growth in the *content* of it. Failure to accomplish his task results in discouragement, lack of self confidence, often in dishonesty, suspicion of the teacher, and ultimately in antagonism toward all life problems and people in general. Those who really study and learn under such conditions may be said to do so in spite of the method of instruction.

**Evils of the
text-book
method.**

The practice among many teachers of marking or grading the student on his daily recitation has caused him to lay emphasis on the text book knowledge, and to lose sight of the real goal of instruction,—the establishment of fixed habits of thought and action.

The real goal
of instruction.

Books have been greatly improved; and when used as guides, or outlines for both the teacher and student, they serve as time savers, and as a means for determining disputed theories and for correcting misconceptions.

The most modern of all methods used in the most progressive schools of the present day is called by some the *Discussion* Method, by some the *Conversational* Method, and by others the *Developing* Method of the Recitation. In this method, the teacher guides the students in verifying and applying the results of their study and research for the truths obtained from a lesson problem. The Developing Method provides probably the greatest opportunity for conducting the recitation according to the most generally accepted views.

The develop-
ing method.

During the period of recitation conducted by this method, there is free discussion of the various aspects of the problem, their relative worth is weighed and considered, and a conclusion reached and verified. The student does not accept the facts merely because given by good authority. He tests for himself through application the practical value of the principles, and discovers new and more effective means for their use. It has been said that "there is all the difference in the

world in having to say something and having something to say”.

In this method of the recitation, the student no longer feels he must *recite*, but that he must have a chance to *express* his opinion, to *prove* his view point, or to get *needed* information.

It is not to be understood that this method is used independently of the text book, any more so than any other methods discussed. Books for schools have been very happily called text books, the very name signifying an *outline* or *guide* to study. Students must be trained to be independent of both teacher and text book. The Developing Method, with the text book as a guide for the student, provides for much independent study through the use of supplementary material.

Herein lies the great change in the view point of the student. He no longer thinks only of the mastery of text book knowledge. He no longer venerates books, but regards them as necessary equipment provided for use in special lines of activity, just as the crayon or laboratory supplies are furnished for certain activities. Both the teacher and the student now understand the real value of the various studies in furnishing specific elements of mental food necessary to increase particular mental powers,—nature study and history for the cultivation of observation and retention, grammar and arithmetic for the reasoning powers; and literature and ethics for emotion and will.

The use of the text book as a source of material and as a guide as well, eliminates one of the greatest dangers in the use of this method.

**Change in
the student's
point of
view.**

**Books are
only tools
and sources
of material.**

The adoption of this method by inexperienced and untrained teachers may result in incoherent, illogical, and superficial work. Accustomed to plans specifically set, they are sometimes lacking in powers of self direction. They find difficulty in its application primarily because of their inability to lead in a discussion. Having had little experience in study beyond the pages of a text book, they must depend upon following the well established plan of their predecessors.

All teachers, especially those who are untrained and unskilled, need a well developed lesson plan to prevent wandering or digressing from the discussion of the problem assigned. Often there is much time and energy wasted through lack of such a plan. It is the teacher's task to provide these plans, and thus prevent needless waste.

It is not expected that any attempt be made to use this method in dealing with those facts which need no development, such as the self evident maxim, "Time is Passing."

The Steps of the Recitation.—In every recitation properly conducted, its formal steps may be accurately traced. They are often called the *Herbartian Method of Instruction* because Herbart was the first to work out a process of instruction based upon the process of mental growth and activity, that is of investigation, generalization, and conclusion. The *Formal Steps* may be given as the presentation of individual notions, the procedure from individual to general notions, and last the appreciation of general notions. Stated specific-

ally, there are five Formal Steps, (1) Preparation, (2) Presentation, (3) Comparison and Abstraction, (4) Definition and, (5) Application. These steps provide for the teacher an intelligent method of procedure in his instruction; that is, of beginning with known facts, proceeding from those to more general and unknown truths, and finally after having verified these principles, applying them in present day activities.

The five formal steps of the recitation.

Preparation.—Preparation, the first of the Formal Steps of the Recitation, provides, through the calling up of past experiences and a review of the facts already learned, for the application of the principle of apperception. Examination of the student's fund of knowledge material which furnishes the foundation for the new ideas becomes the first task of the teacher. To ascertain the correctness of the ideas already possessed as well as the abundance of them is of great importance. Through reviews the teacher may refresh the mind of the student, correct misconceptions, and strengthen the ideas already formed.

The first step.

The term *Review* is often interpreted in a literal sense, that is merely to *see again*, and is conducted as a drill lesson. The drill lesson, repeating the facts, in fixed order and form, establishes a fixed habit of response and thus makes the knowledge permanent. Both reviews and drills serve a specific educational purpose and should be so planned as not to consist of monotonous repetitions.

Review and drill.

A knowledge of the student's attitude toward his task is necessary in preparing for the develop-

ment of a new thought and its adjustment to the knowledge already possessed. Failure to regard carefully each of these points sooner or later results seriously. The assumption that a student understands a principle because it has been given in a preceding lesson or because he may discuss it fluently, is not safe. Misconception always leads to incorrect conclusions and applications. Students realize this truth perhaps aftener in mathematics than in other subjects. In the teaching of history, literature, and science, as well as in mathematics, new ideas should be related to those already learned since they can be understood only when so presented. No student can enjoy "Paul Revere's Ride" unless it is given in its proper setting; nor the story of the "Boston Tea Party" without a knowledge of the struggle over the tax on tea. The mere recital of incidents in history or literature is a process similar to reciting verbatim the stated problems and answers in Algebra and so ending the Algebra lesson.

Through this preparatory work, the teacher is given an excellent opportunity for discovering the predilections of the student. The feelings play an important part in determining the course of action and must be considered by the teacher in cultivating definite habits of thought. Every one is influenced to a greater or less extent by his feelings. An indifferent or repellent attitude prevents a ready grasp of new ideas; whereas the manner in which the student first grasps a new idea will determine his later conception of it.

New ideas must be associated with old ones.

The attitude of the teacher.

The statement of the subject of the problem and the development of an individual aim for the student prove of great value. By this, the student, as well as the teacher, is made aware of the close relation of the new ideas to those the student had before. From this there is developed a more personal appreciation through a realization of personal need of this new knowledge material.

The individual aim.

Presentation.—The Preparatory Step having been well made, the second step in the method of instruction, the presentation of the subject matter, proceeds rapidly and without danger of misconceptions since the student through the light of his past experiences readily grasps the significance of the problem.

The second step.

The Methods of the Recitation which have been discussed apply to each of the Formal Steps of the Recitation. The method should be used in the steps of presentation which will *best* provide for the student's "complete appropriation" of the new knowledge. In this step the student should through actual experience *observe* closely this material in relation to his past experience and then select for himself details for the solution of the lesson problem.

Generalization.—Having collected the data, the step of generalization is employed in organizing and arranging the material. Unorganized material is worthless, facts must be compared and their relative worth determined before a conclusion can be reached. The step of generalization involves the processes of comparison and abstraction and the reaching of the conclusion or definition.

Generalization, which includes the third and the fourth steps of the recitation.

In the process of comparison the student needs some well chosen types, as standard units or measures by means of which he may judge the relative value of his material. All business transactions are based upon some accepted standard of measure; as the *dollar*, the *yard*, the *pound*, etc. It is not a good practice to leave the student without a standard thought unit of measure, that is, to teach him definitions and rules with no typical example to be used as a guide in study and research. The result would be inaccuracy, indefiniteness and misconception. A student often repeats glibly, "A verb is a word that expresses action," but when requested to give an example he is unable to do so.

Standards
of measures.

In making the step of comparison, sufficient data should be used to cover the essential elements of the problem and thus to insure a correct general conclusion. When this is done, the statement of the conclusion or definition should be left to the student. Book definitions, unless fully comprehended, add little either in thought or language to a student's stock of knowledge. If the student understands the meaning, he can easily word the statement of his conclusion independently, since he has the data from which he developed the general notion. The text book statement then would be needed only as a guide in elegance or conciseness of expression. The value of elegant expression should be emphasized. Colloquialisms should be always discouraged.

Text book a
a guide only.

The fifth
step.

Application.—The lesson problems having been presented, and the conclusion reached, there re-

mains an essential step, that of *application*. The ideal held up for the student of the past was, "Learn today that you may use and enjoy tomorrow." The modern precept is, "Learn to use and enjoy today and you will be prepared to do so tomorrow."

Training must be given in the application of knowledge as much as in acquisition. Knowledge has no intrinsic value. Only so far as it is usable does it become power.

Knowledge has no intrinsic value.

Application quickens thought and initiative, develops accuracy and efficiency. Formerly in the laboratories, the student tested his principle for verification. Now, in the shops, in school, and in the home he actually works out and produces finished products as proof of the principles learned. He is no longer a mere dreamer, but a successful producer, with science for his guide.

From the kindergarten throughout the school course, the child of the present has before him tremendous possibilities. Upon whatever task he labors, he sees the ultimate end of his efforts, and thus receives inspiration to bend his energies towards its accomplishment. For example, in a lesson in reading, a beautiful poem becomes a personal treasure which he may share with others; a good story learned receives added value in that it may be retold. Everything given in the school course is taken as a new contribution to his stock of knowledge.

Often a misconception of the purpose of the Formal Steps of Recitation causes objections to their use in instruction. The steps themselves are

The formal steps of the recitation are not inventions. They correspond to the processes of thought.

of no value, but serve only to give to instruction the order which corresponds to the processes of thought. It must be understood that each of the Formal Steps is applied in presenting any complete thought unit. But the teacher should use these, however, as a scientific process and not as mechanical forms. The length of the recitation period will usually correspond to the time required to present a thought unit. It is often the case, however, that a lesson problem may be grouped into a number of smaller thought units, better to serve the needs of the class. This plan necessitates the use of each step in the presentation of each unit. Sometimes, a thought unit is of such length as to require several recitation periods to complete it; in this case the various steps are, nevertheless, used as the thought develops.

In the development of The Lesson in its three phases, The Lesson Assignment, The Lesson Preparation, and The Recitation, no attempt has been made to introduce new theories. The purpose has been to present in a simple and direct manner some of the most important principles in the solution of the problems of the Lesson. The ideas advanced in the discussion have been gathered largely from reading and observation, supplemented somewhat by experience. The terminology used has been adopted from well known authorities on the subject.

For the convenience of those who may desire a more advanced and complete study of The Lesson and its problems, the references below are given as sources:

McMurray—How to Study and Teaching
How to Study.

McMurray—The Method of Recitation.

Struger—A Brief Course in the Teaching
Process.

Dewey—School and Society.

Hamilton—The Recitation.

Compayre—Lectures on Pedagogy.

Roark—Method in Education.

Monroe—A Brief Course in the History of
Education.

Angell—General Psychology.

CHAPTER XVI

TESTING THE RESULTS OF TEACHING

When undertaking an enterprise of any kind, the practical man studies carefully every problem connected with its execution. He strives for definite ideas concerning every detail of procedure. He is particular in obtaining exact information relative to the cost and the liability he incurs in assuming the responsibility of the business.

Exact information and definite plans necessary.

It would repay the teacher, before planning his work for the year, to study critically a capable architect's plans and specifications for the construction of a great building. These could be studied profitably, because they impress the importance of having definite directions as a guide in the performance of complicated duties.

Plans of an architect.

In his study of the specifications, he should note how particularly every detail of the required building is described; how carefully the various interests are protected; how clearly the responsibilities of the contracting parties are defined and prescribed; how explicit are the directions concerning the different divisions of the construction. He would find the following topics discussed plainly and intelligently: The Owner; the Architect; the Contractor; the Time of Completion; Preparation of Site; Excavation; Inspection; Progress of Work; Materials; Workmanship.

No experienced mechanic would venture an estimate of the cost of the building, without a thorough understanding of the plans and specifications, or without graphic details of special parts, drawings and elevations showing the building as it is to appear when completed, nor would he undertake compliance with the specifications without having a copy for constant reference.

It would be interesting and instructive to note the qualities aimed at in the building; strength, proportion, beauty and durability. **Important qualities.**

If this study would cause the teacher to plan his work for the year, and to begin with a keener insight into its details, and clearer conception of what should be accomplished, the time devoted to such study would have been well spent.

Too often, the teacher begins his year's work without definite plans. He is not sure that he knows what to do, or how to do it. He is not well acquainted with the means or the material that he must use, nor has he even an approximate estimate of the amount of material needed. He makes poor provision for estimates of progress from time to time during the session of the school, and in consequence of this lack of definiteness he flounders during all the year, and despairs at the close of his contract. **Definite plans often lacking in teaching.**

"Teaching school" is no more expressive of the teacher's real work than "building a house" is of the specifications of the mechanic. In the construction of a building, the owner trusts to the architect for plans, inspection and supervision; in teaching school the teacher is the architect, the **Various roles of the teacher.**

mechanic, the workman, and the inspector. He draws his own plans; he writes his own specifications; he supervises and inspects his own work, and he accepts or rejects it in the end. He is trusted more than the architect, the mechanic, or the workman, therefore, he ought to appreciate the greater trust and recognize the more serious responsibility. He should constantly examine himself, scrutinize his plans, and inspect the results of his teaching. The structure he is trying to erect should stand when completed, and endure after he has departed.

It is worth while for the teacher to inquire into his own educational status. The completion of the edifice he has been entrusted to build costs effort and skill. The question that Jesus, the greatest of all teachers, once propounded to his disciples is a very pertinent one for the teacher.

“For which of you, intending to build a tower, sitteth not down first and counteth the cost, whether he have sufficient to finish it, Lest haply, after he hath laid the foundation, and is not able to finish it, all that behold it begin to mock him, saying, This man began to build, and was not able to finish it.”

The work of the teacher for the year is to carry forward the building of a structure in the person of each pupil. At the end of the year he passes the pupil to another teacher, to continue the building. The teacher must build on the foundation of the work done by the teacher preceding him, and

must also broaden the foundation for the work of the teacher succeeding him. All are concerned in the structure. They all should comprehend, as some of its essential characteristics, the following:

1. Knowledge of the realities and actualities of life, its duties and its beauties; its purposes and responsibilities. The branch of study from which these materials are supposed to be garnered, are usually given in the curriculum.
2. Power to observe and to interpret what the mind perceives; to recall into consciousness previous percepts and concepts, and to unite them into judgment; to think accurately, quickly and independently.
3. Skill in utilizing all forms of knowledge, in self-expression as exhibited in speaking, writing, drawing, singing, and in the use of the hand and mechanical contrivances.
4. Character as exhibited in habits of thought, in self-control, in conduct, in truthfulness, in courtesy, in firmness, integrity of life and purity of thought.

These qualities give strength, symmetry and beauty to the mental structure of the pupil, and when the session is ended, inspection ought to consider all these items in determining the progress and fitness for promotion.

Tests of the progress of the pupil should be frequent. The teacher who does not constantly watch the improvement of the pupil, but waits till the end of the session to determine whether the work has been done in a manner that justifies his pro-

What should be considered in determining the progress of the pupil.

Tests should be frequent.

motion, and finding him unprepared for it, assigns him the same work again for the next year, has not justified the trust imposed in him. This plan would be like an architect's waiting for the completion of the building, and then setting fire to it in order to ascertain if it meets the requirements of being fireproof, and finding that it burns, demanding of the mechanic that he rebuild it the same way as before.

Opportunities for testing the results of teaching.

The opportunities for testing come every day. The recitation, the study period, the play-ground, all afford ample opportunity to the teacher for ascertaining whether the student is acquiring those elements of education that the teacher has planned for him. The oral review, which should be frequently given, and the periodical written test, enable the teacher to estimate the student's growth in knowledge, in the power of independent thought and skill in expression.

The teacher should have great liberty.

The teacher should have the widest possible latitude in his manner of presenting the subject or instructing the classes. In all mechanical work in which the hand operates on wood, metal, or other concrete substance, one may be directed exactly how to hold the saw or use the plane, but where mind operates upon mind, each teacher must respond to the inspiration that comes to him alone, and must do his work in his own way, without dictation or undue interference from authority.

The teacher's liberty should not violate principles.

But while certain latitude must be allowed the teacher in all his work, still, his liberty should not be a license to ignore or defy the best thought

crystallized into unanimous verdict of those whose investigations, experience, and service have stamped them as authority on questions of education.

While the superintendent should not mar the efficiency of his corps of teachers by unnecessary interference and needless suggestion, still since it is his duty to study educational problems, to guide his school along proper lines, and since he is most responsible for its policy and its ideals, the wisdom of its methods and the efficiency of its instruction, he is derelict if he does not note the nature of the instruction given, the spirit pervading the institution, and from time to time in consultation with teachers or in conferences of the faculty offer such suggestions or such directions as in his judgment enhance the efficiency and improve the general condition of the school.

The promotion of pupils has always been one of the most perplexing problems of the school. The question presents itself from so many different view points; false ambitions so often clamor for undeserved honors, sometimes failure signifies so much to the student, that the granting or the refusal of promotion will continue a question demanding the most thoughtful consideration and the exercise of the most clear-sighted judgment.

To the novice, who believes that a spiritual attainment or a mental product may be expressed exactly in arabic numerals, that intellectual growth may be indicated with exactitude by a mental thermometer, an educational pair of balances, or a psychical meter, the problem has no more

Promotion of pupils always a problem.

complications than that of the addition of a series of numbers and a division to determine the "average," but to the veteran teacher, experienced in the actual work of the class-room, the problem is neither simple nor its solution in exact figures possible.

The late Professor Simon Newcomb, America's foremost mathematician and astronomer, after years of teaching in the United States Naval Academy, said that he could determine the distance to a planet and calculate its orbit and its specific gravity to any required degree of approximation, but to determine with any degree of precision the comparative standing of the students in a class baffled any skill that he had.

The only claim that the student may urge for promotion is that he has met the demands of his class, and that he is capable of doing the work of the next succeeding class, or of discharging his obligations to the public upon graduation.

The justness of this claim can be determined best by his teacher. Whether the means used in determining the answer is by the daily recitation, the oral examination, the periodic written test, or the term examination, the entire question, in its final analysis, is merely the opinion of the teacher.

It is the right of every one in any station of life to form his own opinions, and the forging of these opinions must be made in his own crucible, and not in that of another, but as sacred as one's opinions are to him, he has no right to form them without competence evidence.

Promotion
not a simple
problem.

What pupils
may claim
the right of
promotion.

The teacher
is the logical
judge of the
attainments
of the pupils.

The teacher
should con-
sider all per-
tinent evi-
dence.

There are certain well established principles that should guide the juryman in the box, the judge on the bench, and the teacher in the school, and in maturing his judgment he can not afford to be a law unto himself and ignore or violate principles so well established that they have become canons no longer to be questioned.

No two instructors can teach alike, but there are fundamental principles that all teachers must respect; no two teachers form their estimates of the student in precisely the same way, yet there are in the making up of estimates also well established principles that should have recognition.

**The teacher's
individuality.**

In whatever way the teacher may test the results of the student's effort, he should arrive at a correct estimate. This estimate need not be so exact as to be expressible in Arabic notation, but he should reach a decision in a manner that makes him confident that his conclusion is safe, sound and rational. He should be convinced that he has given due weight to all pertinent testimony, and that there has been no element of chance in the formation of his verdict.

His methods should not only give him the assurance of having obtained a just verdict, but they should be so manifestly fair, so searching, so exhaustive that there is no ground for suspicion on the part of the student that the verdict lacks careful preparation from proper data.

I suppose that it has been the experience of every superintendent that he had in his faculty some member whose failure to promote the student provoked constant complaint, while there

were other teachers who refused to pass a greater number and yet escaped at least open expression of dissatisfaction with their marking.

Scarcely any teacher is so fortunate as to escape the charge of unfairness from an occasional malcontent, even if the charge is offered in excuse for self-admitted dereliction on the part of the student, but any teacher falls far short of his greatest possibility if he fails to impress the great majority of his pupils that he is not only impartial, but rational and just in his decisions.

The rationality of the methods of every teacher should be so patent, that every other member of the faculty with whom he is associated is ready to defend him against criticism, and the superintendent altogether safe in assuring a complaining student that his contention is groundless. Any other condition in a school is unfortunate.

There ought not to be an inflexible rule by which every teacher should measure the student. This would reduce all the processes of education to mere mechanics, and one of the gravest charges against the schools of today is that they are becoming too mechanical.

Beyond question, no one method of determining the status of the student has been more abused and misused than the so-called "final examination." The examination has its own place in the scheme of education. It should be permitted to keep its place and to perform its office, but it should not be allowed to usurp powers and functions that do not belong to it.

Except in rare instances, the teacher does not

Verdict of the teacher should be so manifestly just that it commands respect.

Abuse of the test by the "final" examination.

need the examination in order to determine the status of the pupil. In these cases it may be used to remove any doubt in the mind of the teacher and to show the student himself his true status, and thus relieve the teacher of any charge of injustice.

Examination not often necessary to determine the status of the pupil.

Seeley says, in his "New School Management," that some of the educational advantages of an examination are:

Quotation from Seeley.

"1. It tests the ability to summon all of one's powers upon occasion for extraordinary exertion and to exhibit the knowledge and power possessed upon a given theme.

Value of the examination.

"2. It trains the student in the use of good language, concisely put, under limitation of time.

"3. It requires the exercise of judgment as to essentials and non-essentials.

"4. It solidifies and classifies the knowledge of the subject in the mind of the pupil.

"5. It shows both pupil and teacher wherein the preparation has been weak, or where it has proved unsatisfactory."

He says again:

"The examination should be a fair test of the work that has been covered, should be free from enigmas, and the language employed should be so clear that there can be no doubt as to the meaning of the question.

"The large proportion of a class that has been taught by the examiner, should pass, else the questions have been too difficult or the teaching has been bad."

A large percentage of the students should "pass."

Baldwin says, in "The Art of School Management":

"The examination should undoubtedly constitute what the pupil ought to know, or ought to be able to know. The examination should be a test of the ability and acquirements of the pupil, not of his power to memorize.

"The questions should be pointed and clear, requiring brief and definite answers.

"Principles, plain problems involving principles, essential definitions, leading features, and work to be done are the points to be pressed.

"The examination should undoubtedly constitute one of the conditions of promotion. Is it the most prominent condition? I think not."

White says, in his "Elements of Pedagogy":

"Teachers as a class over-estimate the progress of their pupils, and the more superficial the teacher the greater this failing."

Frequent oral and written tests would tend greatly to remove misconceptions on the part of the teacher, and enable him to ascertain the condition of advancement of his class, without waiting for the final examination, when all defects discovered in the teaching are irremediable.

It is not good policy to indicate in advance just what specific topics will be treated in an examination, but when a teacher has made such an announcement he is bound by it. Whenever the teacher has given the class an outline, leading them to infer that it contains the essential topics of his subject, the complaint that in the examination he went beyond the outline, or did not even

The nature
of the exami-
nation.

Quotation
from
Baldwin.

enter the outline is a just ground of dissatisfaction, because the teacher has not the right to mislead the student.

When examination questions are placed in the hands of the student they ought to be not only clear, unambiguous and definite, but they should be written with unmistakable legibility. In mechanical execution the questions should be a perfect model for the answers that are to be handed in by the student.

Examination questions should be legible and intelligible.

No student ought to be refused a passing mark upon an examination based upon an illegible question paper.

Payne says, in his "Education of Teachers":

"It is manifestly unfair and unjust to spring surprises on the pupil, by demanding what he has not had an opportunity to learn.

Quotation from Payne.

"As a preparation for setting an examination paper, the teacher should ask himself the question: What ground have I traversed with this class? What knowledge have I given these pupils a perfectly fair opportunity to gain? What degree of constructive power over new combinations have they had an opportunity to acquire? What I want to insist on is absolute fairness in these dealings with students. I have known at least one instance wherein one-half an examination paper bore upon matter which the class had never had the opportunity to learn. The first effect of this paper was dismay, and then a determination to offset wrong by wrong, so that the pupils, who never cheated before now resorted to cheating with a will.

Principles governing preparation of examination questions.

“Another principle, or rather the first principle stated in different form is: An examination paper should represent the state of the pupil’s mind rather than the state of the teacher’s mind. This is very far from being a needless caution. We are all in danger of putting too high a value on our acquisitions, especially when they are in any sense unique or exceptional. With this feeling it is natural to give such acquirement an airing, and the examination paper furnishes an attractive opportunity.

“Another principle to be observed is this: An examination paper should open up the *highways* and not the *byways* of knowledge, important dates and places, major facts, cardinal principles; not the trivial but the respectable.

“Some things are so trifling that it is almost a disgrace to know them. An examination paper should have an air of dignity and respectability and the moral quality of fairness.”

One of the strongest advocates of the final examination test is Bagley. He says, in “The Educative Process”:

“This [examination] is the cap-stone of the review process. The very essence of an examination is its formal character. So-called informal examinations or tests may be valuable for certain purposes, but they entirely miss the virile virtue that the examination, in the strenuous sense of the term, possesses.”

But he adds:

“The function of the examination as a test of the pupil’s knowledge is not of paramount impor-

tance, but its function as an organizing agency of knowledge is supreme.”

The use of the final examination as the only test or the most important test is now universally condemned by writers on education.

It is unfair that the student, after spending nine months in the recitation room face to face with the teacher, must stake all his chances of promotion or graduation upon his ability to make a certain per cent on a limited number of questions, sometimes carelessly prepared and made from the standpoint of what he ought to know, and not what he has been given the opportunity to know. The giving of undue importance to the final examination creates a spirit of anxiety, uncertainty, restlessness and distrust of the teacher during the entire session. This state of anxiety is intensified by the knowledge of the fact, that in preceding sessions some have passed whose mediocre work during the entire session was currently known to the whole class, while promotion was denied to some who had been the acknowledged leaders of the class.

The world makes some mistakes in its estimate of men, but the general verdict of the people at large is always safest, and though the teacher may not err, the concurrent opinion of classmates, when different from that of the teacher, will in nearly all instances become the verdict of the school, as a whole, for the simple reason that the teacher may not learn his pupils during the year but during nine months' continuous association they learn one another.

**The verdict
of the school
as a whole
nearly always
correct.**

Quoting again from Payne:

“It is my belief that the almost universal antagonism between students and their instructors, and the existence of a code of school morality quite distinct from that code of morals that obtains outside the school, are due in a large measure to an injustice, not to say immorality, originally introduced into examinations by instructors themselves. By means of his examination paper, a teacher may make himself the arbiter of his pupil’s fate; he can condemn him to any degree of humiliation, can block his progress in the school, and can send him home on unjust principles, or by looseness or injustice in construing results, a teacher may decimate his class and spread a consternation throughout the school that is demoralizing to the last degree.

“In the hands of an unwise or unjust teacher, the examination paper becomes a sort of Gatlin gun, mowing down its score of hapless victims. Woe to the school where this instrument of tremendous power is used unwisely or maliciously! It creates a secret hostility between teacher and pupil; arbitrary power, unjustly exercised, is offset by tricks and frauds on the part of the victims; and the school becomes the scene of sorry encounters between those who should be united by the ties of a common interest and a common respect.”

There is another evil that results from placing an undue importance upon the final examination. The student having learned that much or all depends upon the grade made in the final test, believ-

Quotation
from Payne.

Unfair meth-
ods create
antagonisms.

Additional
trials.

ing that all his efforts, record, his punctuality, diligence, conduct, assiduity during the session now coming to a close count for nought or at least for but little, beseeches the teacher for a second or a third trial; either feeling that if granted a fairer test he can show an acquaintance with the subject or conscious of his imperfections, he trusts that the next set of questions may be on some phase of the subject that requires less scholarship, and that he may by some fortuitous and really unexpected circumstance pass over the "dead line."

Trusting to
luck.

When a teacher has had under his instruction a class not too large for individual acquaintance-ship, for an entire session, has noted the work of the pupil from day to day, has made requisite tests, either oral or written, during the year, and has conducted the usual final examination at the close of the session, and has by weighing all the evidence in the case, judiciously, justly and wisely reached a verdict as to the status of a student, the reversion of that verdict by another examination can not be successfully defended as soundly pedagogical.

Seeley says: "A certain college professor made his examinations so difficult that nine-tenths of the students were bound to fail. A large part of his classes would leave the room upon seeing the questions, without attempting to answer them. As a consequence, the most of the members of his classes were conditioned, and therefore, compelled to take a second examination. This, however, was always made so easy that no one need fail, and thus the class would ultimately be advanced."

Illustration
from Seeley.

In a case of this kind, when a large part of the class failed they were justly entitled to a second examination, because there is no defense for the character of examination that so few could pass; but the practice which permits the reversion of a judgment after nine months' trial and a rational examination is unsafe and it tends to establish an unstable standard.

Applicants for a new trial in the courts are required to show that the former trial in some important particular was unfair, or that the verdict was unwarranted by the testimony in the case.

To summarize briefly, the chief purpose of the final examination is not, in general, to enable the teacher to reach a verdict that he ought to have already reached, but if judiciously used it may serve as his protection; that it should not be the controlling factor in the verdict; that when used it should not enter a field not fully explored during the session; that principles and not details should be stressed; that the judgment and not merely the memory should be brought into requisition; that the examination should not be long and tedious; that the questions should be unambiguous and legibly written; that the appearance of the question paper should be neat and respectable; that it should show evidence of careful, thoughtful preparation; that it should be taken from the standpoint of the student and not that of the teacher; that the student remembers all the facts he has met with is of less importance than that he has acquired skill and power while learning these facts; that examination periods should not

be times of mental and nervous exhaustion, of anxieties, and heartaches; that while the examination should be so fair, so just, so reasonable that the diligent may enter it without apprehension, it should not be so simple and puerile that the sloven or the sluggard may find it a passport out of the territory that he has made no effort to possess or to explore.

In no other manner can a teacher in so short a time so fully disclose himself as in the making of a set of examination questions. These often describe his whole method of instruction, portray his ideals, show whether he has a comprehensive method or uses sets of devices, whether he elaborate principles or drills in details and in technicalities, whether he incites power of thinking or skill in copying, whether his instruction tends to produce original thinkers or servile imitators.

Unquestionably it would be sometimes profitable for the teacher to regard the examination papers received from the students as his own examination. If the examination has been properly conceived and properly conducted it puts to the test the wisdom, the skill, the efficiency of his instruction. He has been trying for several months to accomplish a definite purpose, the material he has had is as good as the average furnished teachers everywhere, the conditions have been fairly favorable, or if not, he has known what the conditions have been. He now makes his own test in his own way and the result ought to show how well he has done his work or in what he has failed; and I speak from personal experience when I say, that

The teacher discloses himself in his examination questions.

The papers of the pupils are also the test of the teacher's efficiency.

in all my career as a teacher I have never found a means of detecting my own weak points, and of correcting them afterwards, that has proved more genuinely helpful and practical than the careful and critical study of the examination papers of my own students.

The examination period over, what disposition should be made of the papers of the students?

Disposition
of the exami-
nation papers.

If the examination has been of so great importance as to have a period set apart to it and the regular work suspended for it; if the teacher has the right to demand this ordeal of the student, then it is the unquestioned right of the student that whatever he has written be read with that degree of carefulness, patience and fairness, that he has been expected to exhibit in the ordeal through which he has passed and to which the teacher has attached so much importance. No teacher can disregard this right of the student; the examination might in every other respect be characterized by wisdom, fairness, and justice, and every element of merit in the examination be annulled by careless, thoughtless and indifferent work in reading and marking the papers.

Rights of the
student.

The student has still another right. If the examination has been given to disclose the status of the student and to ascertain the defective places in his work, he has a right to know where these defects lie, merely marking the paper for the passing mark is not enough. Whether the marked paper should be returned to the student, we cannot now consider, but the right of the student to know

in what respect he has been found deficient, is unquestionable.

At a glance one might suppose that the teacher and the pupil, and probably the parent of the pupil, are the only parties interested in the question of promotion, and the only ones affected by an unwise or mistaken refusal of the teacher to promote him; but no teacher has the right to place a "condition" upon a pupil as he advances in other departments of the school unless the teacher has exercised every precaution and used all the competent testimony and disregarded all the irrelevant and incompetent evidence in the case.

Pupil not only one concerned.

The time necessary to the removal of conditions in one department is time taken from what is justly due other departments. The student loaded down with conditions by one teacher is frequently prevented on such account from doing creditable work under several other teachers.

Conditions imposed in one department affect other departments.

What shall take the place of the formal examination? Nothing should take its place. It should stay in its own place and perform its own functions, and not usurp those of all other processes, and while it is kept in its own place it should be kept sane, sound, rational, and helpful, and be made an inspiration instead of a nightmare to the school.

No one could recommend the adoption of the other extreme—the close marking of every student as he stands in recitation every day. There is no greater travesty on teaching than a person at one end of the room with class roll and pencil in hand waiting for a pupil to finish a sentence to

Daily marks.

indite opposite his name some letter, numeral, hieroglyphic or other symbol indicative of the value of the answer given by a student while making a hopeless effort to think under conditions so unnatural.

Acquaintance with the pupil imperative.

Natural but effective means of recording the daily work of the student, frequent tests, whether oral or written, judiciously used, obviate much of the evils of the formal examination; but after all methods are tried, all experiments made, all devices used, there is nothing, that in accomplishing effective teaching and in reaching a correct verdict concerning the standing of the student can compare with an acquaintance with the student himself.

Not to know a pupil is not to teach him. The teacher who being asked by the parent at the end of a session of nine months how his child has progressed, must refer to the books before answering, admits failure in one of the vital processes of education.

Should the teacher urge the impossibility of learning all the students of large classes, he but confesses his own limitations and admits that the number he can really teach is comparatively small.

Teachers differ in ability to teach numbers.

Unquestionably some teachers can instruct greater numbers than others; some men make excellent captains of companies, but can never succeed as commanders of regiments; but the teacher who will systematically study how to learn his pupils, how to learn large classes of students, who will recognize that it is as much his duty to learn

the student as that of the student to learn the text book, will soon have his capacity for learning persons multiplied beyond his most sanguine expectations. The teacher who can no more than call the student by name, has a decided advantage over the one who has not learned to do even that much.

Payne says again:

“In very large classes, it may be said, individual instruction becomes impossible, and many failures, are the consequence; but evidently these pupils lacks opportunity through no fault of their own; either their progress should be slower in order that it may be surer, or the severity of the examination should be modified. A large per cent of failures in examination is proof positive of poor work at some point on the part of the instructor.”

A serious problem of the teacher then, who goes into a school in which the classes are large, is to learn how to conduct large classes, to learn many names and faces, dispositions and natures, and failing to do so not to charge his failure on the student's side of the ledger but to admit his limitations and treat the student accordingly.

**Teacher
should learn
to teach
large classes.**

CHAPTER XVII

SCHOOL GOVERNMENT

The Modern View of School Discipline.—In the preceding chapters frequent mention is made of the changes that have been wrought in recent years in all the arts and activities of modern life, but nowhere else has there been a more complete transformation than in the modes and the motives of school discipline.

The old and the new view of school discipline.

The old method repressed the spontaneity of the child, the new encourages and directs it into ways of usefulness.

Old books on the methods of school government were devoted largely to the enumeration of rules, regulations, and modes of punishing the unlucky pupil who, wittingly or unwittingly transgressed the law of the school or refused to respect authority.

The old view of the child.

The old method was based upon the theory of the child's innate depravity; the new method upon its possibilities. In former times the reputedly good disciplinarian was he who detected the greatest number of infractions of rules, devised for violated law the greatest variety of penalties, and who was also the most relentless in the infliction of punishment.

Modern society has moderated the severity of

punishment of criminals guilty of almost all offenses, and both the school and the home have ceased to regard the child as a culprit whose tendencies are all towards evil. The new view of the child.

The Purpose of Discipline.—The chief ends of discipline and all other phases of school government are the development in the pupil of the capacity for self-control; to inculcate in him the love of the right and the will to choose it when immediate stimulus and natural impulse strongly impel him towards a different choice; to lead him to trust and respect himself, and to accord cheerfully to others their rights and privileges; in short, the ultimate end of school government is the development of character.

To be more specific or concrete we may say:

1. There must be order in the school during the daily exercises and comparative quiet during the study periods. When the pupil is taught to find and to keep his own place in the school-room and on the play-ground, not to obtrude where he does not belong or interfere with other pupils in the performance of their work or in their play, he is being trained to conform to conditions imposed by law, society, or convention, and to discharge the duties of intelligent citizenship. Necessity for order.

No one need expect that order in any school will be at all times perfect. So long as human nature is human nature there will be jars, disputes, quarrels and conflicts among individuals whose interests or opinions clash in their work or in their play. These conflicts are inevitable. In fact, they denote virility and their occurrence is by no means

a symptom of degeneracy into savagery. The teacher should expect some outbursts, and if he is wise he anticipates them, is prepared for them before they come, grasps the situation and restores order calmly and quietly and reduces to a mere ripple what might, if injudiciously managed, have developed into a maelstrom.

2. The work assigned the student must be done. Habits of indolence and procrastination must be prevented. The school-room should be a busy place where every one is intent on some phase of school work. Earnestness and animation should mark every moment of the study hour, and the recess period should not have a loafer or a loiterer on the play-ground.

Elements of Efficient Control.—The responsibility for school government devolves upon the teacher. Though he may have many other essential qualifications of the true teacher, a blunder in government is sometimes disastrous. Some qualities of mind and disposition are indispensable to the teacher in the discipline of the school.

1. Will power is necessary to control a school. A vacillating teacher fails to inspire respect for his authority. The guiding hand should be gentle, but it must be always firm. The teacher should be at all times deliberate even in what may be to him a trifling matter, but when he has rendered his decision, it should not be reversed through cajolery or blandishment of the pupils.

2. Self-control is imperative if the teacher controls others. Anger is always an unmistakable sign of weakness. Trifles ought not to be allowed

The work of the pupil must be required.

The elements controlling power.

Will power.

to disturb the teacher's equanimity. To be annoyed by infractions of regulations or disconcerted by unpleasant occurrences is evidence of shallowness of character. The brook makes a great ado over the stone that is thrown into its path, but when a boulder is dropped into its channel the mighty river flows smoothly on. Irritability on the part of the teacher begets among the pupils disorder, inquietude and uncertainty that render effective work extremely difficult. **Self control.**

3. The teacher should be rich in sympathy. In more senses than one he is *in loco parentis*. He should be helpful in all the youthful ambitions and undertakings and a refuge in time of trouble and misfortune. The teacher to whom his pupils can come confidently when in trouble or even in disgrace has very nearly solved the problem of discipline. **Sympathy.**

4. The teacher should have self-confidence. Self-confidence is not egotism. An egotistical teacher is a misfit, but self-confidence is a conviction, depending upon past preparation and experience that he can accomplish what he undertakes. Self-confidence begets that composure and equanimity of mind that inspires the confidence of others and make them willing to be directed. **Self confidence.**

5. The teacher should be candid. The young child entrusted to the direction of a hypocritical teacher is unfortunate. The tragedy of it is that the child soon looks under the mask and discovers the sham and begins early in life to distrust everybody and to dissemble himself, repaying deceit with deception. **Candor.**

School Regulations.—In any organization of individuals some sort of regulations is necessary. Societies have their by-laws, clubs their constitutions, state legislatures are constantly enacting laws, all for the purpose of defining the rights of members or of citizens, giving limitations to privileges and for determining by fine, penalty or punishment the refractory or the criminal. It is necessary that any school have well defined regulations; that these regulations be thoroughly understood by teachers and students. The nature of the regulations will depend to some extent upon the grade of the school, its method of instruction, whether the departmental plan is used; or whether the students are mostly boarders.

The principles governing the nature of the regulations are, however, the same for all classes of schools.

1. Regulations should be positive rather than negative. It is better to require truthfulness than to forbid lying; to demand attendance upon classes than to condemn wilful absence.

2. Regulations should be reasonable and their necessity should be obvious to the pupils.

3. Regulations, when possible, should be general rather than particular, but when occasions arise for specific regulations, they should be made, and the necessity for them explained.

Enforcement of Regulations.—All regulations should be enforced. It is not the province of the pupils to discriminate among them, deciding which ought to be, and which need not be, obeyed. No regulation that can not be satisfactorily enforced

School regula-
tions.

Principles
governing
school
regulations.

should be promulgated, but when once promulgated it should be enforced or repealed.

The best general means of securing compliance with school regulations by the pupils is to furnish them an abundance of work and play, rationally divided. Most of the disorder and disobedience in the school is the result of lack of employment. Pupils who are busy and interested in the work of the class-room, gymnasium, the workshop, or the play-ground are seldom troublesome on account of misconduct.

Means of enforcing regulations.

The cultivation of proper incentives, leading to a broader view of school life, is an effective means of raising the standard of conduct and infusing a spirit of conformity to principles of justice and reason.

By all proper means, by the reading or telling of stories to young pupils, by lectures with biographical illustrations to older ones, with constant illustrations by example to those of all ages, the best ideals of life and of conduct ought to be presented with sufficient frequency to make this feature of education prominent in the school.

When appeal to honor and to the higher ideals of life prove ineffectual in individual cases, then a resort to penalties becomes necessary.

Penalties and Punishment.—The object of punishment is to reform the offender and to set an example for others. Unless some penalty were imposed for violation of regulations, the regulations themselves would be in many cases inert and useless.

Penalties.

Principles Governing Punishment.—1. Penal-

ties should be more certain than severe. It is the certainty of punishment that deters those inclined to be law-breakers. Punishment that is too severe will not receive the approval of the school, and it, therefore, tends to create a spirit of antagonism between teacher and pupil.

2. There should be a sequence between the offense and the penalty. For example, wilful absence for recitation—"cutting class"—should be punished by recording the grade of zero for the recitation, and requiring the offender to reproduce the lesson at some future time.

3. The penalty for violation of privileges should be the withdrawal of the privilege. For example, the student who conducts himself improperly, is quarrelsome, or uses indecent language on the play-ground, should be denied the privilege of the grounds until there is some assurance that the reprehensible conduct will not be repeated. If the general conduct of the student has been such that appeal to higher motive, reproof, or reprimand fails, suspension of the privilege of the school, class-room, and play-ground may have the effect desired.

Among small children, reproof, reprimand, and sympathetic direction seldom fail, even when the conduct has been extremely reprehensible. In this the child is the main one to be considered. In schools for adults the school itself must also be considered; and when the conduct exhibits gross moral turpitude it is unsafe to trust to any remedial punishment, and it is best for the school that the offender be required to sever all relations with it.

Principles governing penalties.

Reproof, reprimand, and suspension.

CHAPTER XVIII

PLAY AND ATHLETICS IN EDUCATION

Nothing impresses more vividly upon one the accomplished revolution in educational thinking than the changed conception of the place of play in the school. Play is the universal phenomenon of youth. It is one of the earlier instincts to develop in the child (due perhaps to a generous supply of nourishment furnished by the parent). It is likely to cease later in life, when the struggle for existence and the altruistic effort to supply one's dependents render greater economy of effort necessary. The instinct of play immoderately indulged after such economy has become necessary, and so leading to individual want or the suffering of dependents, has naturally and correctly been condemned as a vice.

Play, the phenomenon of youth.

But going beyond the limits of legitimate inference, the adherents of the ascetic ideal in education, who have believed in producing the perfect man by lopping off whatever is superfluous or reprehensible have been anxious to quell the instinct of play as an activity ill befitting one engaged in the serious occupation of gaining an education. This is said to be the case with the Chinese school-boy, who never plays. For centuries monk and Puritan have frowned on play, but it has been either a bitter victory or a vain fight.

Chinese children seldom play.

A different tendency in education, which must

have originated wherever parents found their sweetest music in their children's laughter, was gathered and given form and impetus by the volcanic genius of Rousseau. It declared that the natural, and that alone, was good, because God had made it, whereas, man, by his ignorant zeal, spoiled all he mistakingly sought to improve. Pestalozzi and his followers continued the argument, setting forth that development, and not pruning, is the normal educational process, hence, while play might be directed, it should by no means be stopped. Froebel systematized play in education, and gave it a philosophical basis. Marie Montessori would guide the free activity, which is the innermost characteristic of play, into educational aspect by furnishing proper materials and conditions.

Lighted by the results of recent research into the nature of the child, the modern attitude toward play is in general decidedly sympathetic. It is easy to distinguish two kinds of play. The first is the play that rehearses the experiences of our ancestors. As the child is in many ways only a recapitulation of the past, so the natural path of discharge of his energy is in the line of ancestral activities. Thus war and the chase were the ancient counterparts of football, "tag," and "hide-and-seek," and all their variations.

In the other kind of play, equally distinctive, the child imitates what he sees adults do. Everyone can recall numerous examples of this. By these two phases of play activity, drawn from the past and the present, the child is ever fitting himself

Impetus to play by Rousseau.

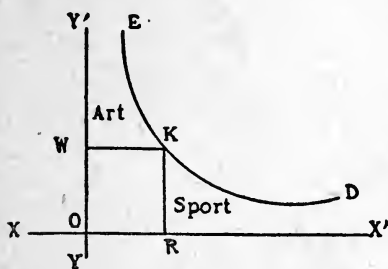
Modern attitude toward play, sympathetic.

Two kinds of play.

The child imitates.

for the place he is to fill in the future. The child that does not play loafes just as much as the man that does not work. Hence, the significance of the modern epigram, "The child without a playground is the father of the man without a job." There are those who prefer to fear the effect of play on the serious work of the school, and to scorn the modern attention to play as an exhibition of "soft pedagogy." Perhaps this comes from a superficial view of play as of a single nature and contrasted with work, whereas, really it is of a twofold nature, with both aspects most intimately related to work. If all activity is abstractly divided into work and play, we may say that with work there is always some ulterior result that is looked upon as the reward for it, while in play the activity itself is its own sufficient reward. It is readily observed that in reality the distinction is by no means clear, but most concrete activities have some of both elements.

A diagram may help to make clear the two kinds of play and their relations to work. Let the space



between the curve D K E and the rectangular axes X X' and Y Y' represent *activity*, and the rectangle W O R K represent work.

Work and play.

Then the remaining space, representing play activity, is divided into two parts, a lower part at the right of the rectangle, which

we may call *sport*, and an upper one above the rectangle, that we may denominate *art*. As civilization has progressed the rectangle WORK has shortened its base and increased its altitude; that is, it has dropped off many of the activities now known as sport, and has incorporated, little by little, territory from the realm of the artistic. Then while the sports, real or conventionalized as games, link us to the past the arts open up to us the future of civilization. By the use of sports we add strength to our bodies, as Antaeus renewed his by falling back upon the earth, and by the use of art we increase the vitality of our souls. The singing and the music, whether in performance or passive enjoyment, the art work of the pupils, their enjoyment of school-room decoration and the architecture of the school building and school grounds, all alike are a part of the play activity. Huxley refers to "the great source of pleasure without alloy, the serene resting place for worn human nature—the world of art," as a frequently neglected field of education. Yet, while this realm is worthy of attention, it is the realm of sport that at present commands the deep concern of educators. A restatement of the school values of play may be of service in classifying the further discussion.

Aside from the fundamental culture value of play, indicated in the preceding paragraphs, play has several other distinct values.

The great natural obstacle to the teaching process is fatigue. It is caused probably by the physiological changes, both physical and chemical,

in the structure, the blood supply and blood composition, and perhaps other factors, unknown or ill understood, in the brain areas that serve in some mysterious way as the basis for mental activity. When study has continued till a state of fatigue is reached, attention is difficult to secure and maintain; or, as we say, interest flags. If, now, considerable vital energy is present, and he who eats and breathes will have it present, it tends to find expression through some other channels, usually the surreptitious ones known as mischief. To restore the mental balance by resting the wearied tracts and by working off the surplus energy in the relatively unused area, nothing is so efficacious as the free play of the recreation period. The beneficent effect will be noted in the easy order of the succeeding period, and the folly of "keeping in" for restlessness is thereby made obvious. This may be called the disciplinary value of play. Play in this sense may be regarded as a moral prophylactic against mischief, somewhat as Aristotle over two thousand years ago regarded music.

Values in
play.

Again, the social way of education, the development, training, and information one gains by living with one's fellows, is greatly furthered by play. Often in the history of education, when the method has been outrageous, and the subject matter has been worthless, as in the medieval universities and the "English public schools" of the eighteenth and the early nineteenth century, the meeting and mingling of students has saved the day for culture. The saying that the battle

of Waterloo was won on the cricket field at Eton points out a real truth. The qualities of leadership and loyalty, keenness of mental activity, persistence, regard for others, relative values, all may be cultivated on the playground.

The hidden flaws of character become apparent in play, and are subject to elimination in the democracy of the play-ground. Public sentiment is a powerful factor for denouncing meanness and exposing its ugliness, and for enforcing righteousness in juvenile as in adult society. "Fair play" belongs to the terminology of both.

The single health value of play is not to be overlooked. Of course, neither the school nor the occupations therein ought to be detrimental to the pupil's health, yet it is feared they often are. Therefore, it is essential to provide for periodic vigorous exercise in the undefiled oxygenated air of the outdoors, preferably stimulated by the emotion of play. Particularly is this necessary for the one who is "good at his books," whose mind needs a sturdy body to support it for proper usefulness in the world. Such a child is only too likely to neglect healthful exercise, unless he is led to it by the social feelings engendered by the game. Certain games and plays that by bravado and youthful recklessness have been developed to a state where they themselves are dangerous to health, at least for a part of the children, need to be very carefully watched.

For these reasons ample provision should be made for play in every school or other center of child life. The seriousness of the problem of

Defects in character disclosed in play.

Health value of play.

human congestion in our large cities is perhaps more impressive in respect to the poverty of opportunity for children's play than in any other way. The making of play-grounds on the roofs of New York City schools compels admiration for its ingenuity, but is nevertheless pitiful. The late order in the metropolis of fencing off certain streets, by blocks, from traffic from three to six in the afternoon so that children may play, is well conceived.

Premises
should be
made for
play.

Fortunately, in most of the country a little forethought will secure sufficient space for play as well as sunlight and air. When land values get high in a community, there may be an inclination to economize in regard to space, which is not unnatural to the business men on a school board. For this reason school boards in many progressive communities look ahead for school sites in the direction of growth, while land is yet cheap. The very fact of such ownership has a very appreciable real estate value, so it is generally facilitated by the promoters.

Space needed.

The beautification of the premises, while important, must not be permitted to infringe on the space for play. The finest ornament to any school ground is a group of happy, healthy children engaged in play.

While space is the first essential, apparatus for play may also be valuable. What there is had better be simple and safe than ornate and complex. The swing, the see-saw, the giant stride, and the slide, are common forms that solve the entertainment problem for some. Courts for

Play appa-
ratus.

tennis, volley ball, and basket ball, will help for others. With all these there must go constant supervision, close but tactfully unfelt, that on the one hand, the abuses of selfishness and rowdyism may not creep in, nor on the other, that the spontaneity, which is half the charm of play, be not crushed.

More reliance must be put on the organization of free games in which less skill is demanded and greater numbers can participate. "Prisoners' base," "pom-pom-pull away," "cross-tag," "wood-tag," and many others established by law in the kingdom of childhood, are good for this purpose. The presence of a teacher or other guardian is absolutely necessary, both to make the play safe and to make it educative physically and morally.

Athletics is organized play, generally for older students. It differs from the play of the younger children mainly in the more formal and rigid rules made necessary by the greater importance given to the principle of competition, as well as by the greater strength of the participants. The argument underlying athletics is otherwise not different from the principles of play in general, though it is often discussed as if it were something distinct and apart. This has led to a confusion of thought where clearness is very essential.

The difficulties involved in the problem of athletics in connection with modern education are caused chiefly by the entrance of commercialism into the case. In this respect athletics differs not a whit from a number of other phases of our civ-

**Athletics,
organized
play.**

Difficulties.

alized life, where the love of money is the root of all evil.

That whoever works faithfully should play joyfully is only an inevitable inference from the universal law of rhythm, of which day and night, summer and winter, ebb and tide, are larger examples. In student life, the vices of solitude and the coarse forms of rowdyism known as hazing, are the results of the neglect of open play. Hence, athletics should be organized to affect every student in school. Difficulties will be met in the realization of this ideal. The student who works his way may be forced to sacrifice his play to his purpose. The student whose physical condition in some point deviates from the normal, must search out for himself a form of play that will not be dangerous. This will require expert physical examination and diagnosis, accompanied by advice of highest professional quality. No form of play that is for the normal person dangerous to health, limb, or life, should be tolerated. If the dangerous features can not be eliminated by revision of rules, it is far better to eliminate that form of play as a whole. The plea that something is needed to develop and exercise physical courage in this generation will hardly seem valid in the face of irreparable loss.

Athletics is generally distinguished as games and "track work." The latter consists of independent events, in which individuals compete with other individuals for excellence or supremacy in some form of specialized physical endeavor. Various forms of track work are, running for

Athletics should be planned to affect all students.

Track work.

different distances from fifty yards to two miles; jumping, both "standing" and "running," and both "high" and "broad"; pole vaulting; throwing of hammer or discus, and "putting" the twelve or sixteen pound "shot"; and perhaps others, with modifications and combinations. In all of these, "form" is the accomplishment of greatest concern, that is, the particular manner of performance in which experience and science have proved the body can most economically and effectively exert itself toward the goal desired. This will generally be the most graceful way, for grace is only economy of effort in movement. A contest in track work, generally called a "meet," does not assume the nature of a conflict, for the opponents are really not persons but performances. There is yet the danger of over-exertion, which danger can be reduced by regulation and competent physical examination.

In late years track work has received a needed and deserved impetus from the organization of interscholastic athletic leagues for holding meets by counties and districts, with a climax of interest in a state meet, a system susceptible of development to great usefulness. It is to be noted that the plan permits a number of contesting units to strive simultaneously, lessening the intensity of partisanship, and permitting a greater variety of results. This variety will increase with the growth of interest in the work in the local units, which need not necessarily be large. The international "Olympic games" were in a way to accomplish as much for world wide civilization as

they did for the early Greek culture. Perhaps it was not mere coincidence that these two manifestations of interest in this form of athletics were simultaneous.

One difficulty in track work has been that a man of fine physique could compete successfully in a number of contests, which would discourage others from entering. It is suggested that each contestant be forced to limit his choice to a certain event, or to one event in each form, as the hundred yard dash and the standing broad jump, etc. Then it is believed, more would enter into the spirit of the occasion, and the benefits would be multiplied.

Each contestant limited to one event.

However, the track work has as yet been considered a minor part of athletics. The annual "field day" at a college or school is usually a very tame affair, when compared with the "big games."

And it is with the games that the state of perplexity enters the problem. The principal games are football in the fall, basket ball in winter, and baseball in the spring. Because the first mentioned game has achieved a popularity beyond that of both the others, the discussion following will apply particularly to football.

The principal games.

The perplexity begins when the ideal in athletics is, to have a "winning team." The real "games" are only with like teams from sister institutions. Whatever playing is otherwise done at home is only "practice." Most of the work in practice, however, is in the elements of the game, such as "tackling" a dummy, and is essentially a matter of drudgery. In order to have a winning

Ideal should not be solely a winning team.

team, it is necessary to have good material, hence preparatory schools are scoured for men with promising brawn and agility. Students of suitable physical build, who have entered school for the serious purpose of study, are teased and wheedled into "coming out." Generally the glamor of "making the team" is a sufficient lure. Still, to produce a winning team of the best material and equipment, requires a skilled trainer or "coach," or perhaps a force of coaches. These study the game "scientifically" and plan "strategical plays," "formations," and other conceptions of military flavor. The plays are practiced with secret signals most assiduously, till the formations become automatic and the team plays as one man.

Then the "players" must be inured to strenuous effort by persistent training, which will require several hours of hard daily work. Further, the members of the team must be cared for physically, fed on special diet, to bring out each man's maximum efficiency.

All this is very expensive, therefore, the games must be made to pay. A season's program or schedule is made up. Contracts to play with other teams are made, specifying conditions and considerations. Season tickets and tickets for individual games are sold. A high fence shuts out the impecunious. "Grand stands" and "bleachers" provide more or less comfortable seating facilities for cash. The people, alumni, students, and citizens must be brought in order that expenses may be met. The result is a game that

**Athletics
expensive.**

is a social event of the first magnitude. The successful team is glorified and adulated. The defeated team explains the best it can how it happened, and plans to retrieve its misfortune next year.

It is not to be denied that athletics of this form has a certain social value. The spirit of loyalty to one's group is one of the fundamental conceptions of modern ethics, the group being extensive with the individual's breadth of vision to include his family or the universe. This loyalty, athletics undoubtedly fosters in a college and a college town.

Social value of athletics.

When a school can have a winning team without dishonesty, it probably has "clean athletics." But the temptation is strong, when conditions are otherwise. It is also to be found that frequently the game provides easy opportunity for gambling, with the usual consequent demoralization.

An objection has been urged against the great amount of preparation and the expense necessary to produce a winning team, and that the great majority of students take out all their exercise in yelling to cheer their team. The players whose bodies are already in good condition get more exercise than is beneficial, lose through physical weariness much valuable time, and frequently at the end of the season, when training "is over," suffer a serious relapse of physical strength.

Too few students participate in the athletics of the school.

The way out of this perplexity is to establish certain fundamental rational principles, and cling to them unmoved by undergraduate and alumni clamor, or by the spell of prevailing fashion.

Means of improving athletics.

First: The main legitimate ends of athletics are health and fun. All others are subsidiary to them.

Second: Practically all should partake in actually doing something with their bodies in some form of athletics suitable to their needs and strength, if it be only the regular brisk morning walk.

Third: A physical and athletic director, with this broader vision, should replace the professional "coach" in the high school and the college. The director of athletics should have as much culture as any other member of the faculty.

With these principles established, the fundamental play spirit, which is the natural heritage of uncorrupted youth, would again possess athletics, and commercialism be driven out.

Advantages of Athletics.—Elementary football and baseball training is largely drudgery—the candidate for the team is either persistent or he is thoroughly imbued with the need of persistence before he gets through his preliminary work. He learns, as an adult, what he may have forgotten from his childhood, absolute, implicit, unquestioning obedience to those in command.

Later on, he learns that successful football depends more upon team work, *i. e.*, willing coöperation—a lesson, that if applied, will be of value throughout his life.

Under the trainer he learns that clean living is one of the essentials of athletic success; that he who abuses his body pays the penalty for his every excess. Out of his failures will come the

**Advantages
of athletics.**

Team work.

Clean living.

realization that he pays. Not only physically, but mentally and morally—a bit of human philosophy, a lesson in physical well being, that he might otherwise not learn until late in life.

On the field he learns to think quickly, to act in an emergency, to apply previously acquired experience and knowledge instantaneously to new conditions that may arise suddenly and without warning.

Quick thinking.

Athletics probably does more for the inculcation of a spirit of loyalty for the school or college than any other one student activity, and the higher the plane on which athletics is held, the greater the loyalty and class spirit ensuing. The student loyal to his alma mater, and revering its high standards, literary and athletic, is a missionary for that institution to his last breath.

Spirit of loyalty.

How divergent are the opinions regarding the game is shown by the existence of one extreme which would eliminate it entirely as outside the sphere of educational institutions; and of the other, which measures the success of a school chiefly by its gridiron accomplishments. But in between are the great majority of educators who believe that educational institutions exist primarily for intellectual purposes, but realize that many benefits to both institution and students may be derived from a well directed athletic department.

Extreme views concerning athletics.

The requirement, now almost or quite general, that candidates for the different teams must make at least a passing grade or be barred from the team, has gone a long way toward removing the

Requirement of scholarship beneficial.

stigma that used to attach to college athletics—instances where “special students” were permitted to matriculate and loaf through the fall or spring terms for the real if not ostensible purpose of playing football or baseball—these requirements have put college athletics on a quite different plane from what used to be. Players nowadays must be *bona fide* students, with passing records. And we find many of them far above the average of their class—a tribute to clean living and thinking, and to the changed standards in college athletics.

CHAPTER XIX

THE RURAL SCHOOL PROBLEM

The Rural Problem.—Within the last few years, there seems to have arisen in the minds of many people the realization that there is a rural problem. Not much was said about this problem until the appointment of a Rural School Commission by the President of the United States but a few years ago. Since that time, sociologists have directed their attention to it, and they seem to have reached an agreement that the exodus from the country to the city is its most menacing feature. Doubtless, the danger of this movement to the city has been exaggerated; but that it is a danger is now recognized, and if we can not find something to take “back to the farm” those who have already gone, what ever can be, ought to be, done to give those who have remained in the country more of the advantages of the achievements of the race than it appears they are now receiving.

Exodus from
the country.

There has not been, as some appear to believe, any retrogression or deterioration of rural life. In recent years great progress has been made in agriculture and all the arts that engage our rural population. They enjoy many advantages over the rural population of even ten years ago, therefore, there must be some other reason for so many being drawn from the country to the city.

No deteriora-
tion of coun-
try life.

The causes for this exodus are many, some of which lie deeper in the problem than others. Hard, persistent work, dependence upon weather and markets, long hours and plain fare, monotony and isolation, all operate to discourage the boy or the girl of spirit from remaining on the farm. The meretricious desirability of the positions of bookkeeper, stenographer, or salesman, with fancied opportunities for rapid promotion, entices many from the greensward to the brick pavement. Even the shop, with its limit of eight, or even ten, hours of work per day, contrasts favorably with the conditions of the farm, when one fails to appreciate the difference between the song of the birds and the clang of machinery. Above all, the animation and excitement of the city, its thronged streets, and its numerous places for diversion and entertainment, constitute the "lure of the city" that draws them from the country.

Many parents seek the city for the educational advantages afforded there for their children. The rural school has perhaps aided, positively as well as negatively, in the depopulation of the country. The rural teacher is usually a young man or woman from the city, whose influence tends to create in the pupils a desire for the city. The subject matter of the course of study is permeated with reference to the city and its many activities. The reading lesson, recounting how a poor boy became a merchant prince, the arithmetic problems, involving transactions of banks, etc.,—all tend to create ambition to go to the city.

Another cause for movement towards the city

Causes of
exodus from
the country.

Animation of
city life at-
tractive.

Superior
school facil-
ities of the
city.

is the general advance in the price of land, which in many sections of the country precludes the possibility of land owning by the wage-earner.

Advance in price of farm and ranch lands.

For some of these conditions, remedies have been discovered. Machinery has been invented to relieve many farming occupations of the arduous toil that formerly characterized them. Most of the field work, and much of the house work, can now be done with machinery. "The man with the hoe" is becoming historic. Methods of crop rotation, cultivation, and fertilization have been substituted for former "soil-mining." Seed selection and the keeping of records are rendering farming more business like.

Telephone service and rural free delivery of mail have to a considerable extent dissipated the isolation of farm life. Automobiles and good roads minister to social as well as industrial needs. Organized coöperation in marketing gives the farmer better prices for his produce, while coöperative buying enables him to get more for his money. These improvements bring the farmer greater reward for his labor, and enable him to secure the means and the leisure to minister to his higher life. When these favorable conditions have become general, the inherent advantages of the country—pure air, cheap, plentiful and wholesome food, quietude and peace, health and sanity—will be better appreciated.

Remedies for the exodus.

The Rural School Problem.—To popularize all these improvements, to furnish desirable opportunity for recreation and the cultivation of social life, and to provide the educational facilities that

parents desire for their children is the *Rural School Problem*. The solution of this problem will be the chief means of keeping the young people in the country.

To the usual speaker of the first century of American independence "the little red school-house on the hill" was an unfailing source of inspiration. It is granted that the "red school-house" served its generation well. It relieved the illiteracy inevitable under pioneer conditions. Its results, limited though they were, satisfied the modest demands of the people of that period. With its spelling bees and singing schools, it provided an opportunity for young people to meet. A good teacher, however slight his opportunity for instruction, could no doubt be an inspiration to a rural community, when he mingled freely with the people every day. The abundance of work in the numerous different industries and occupations in operation on every farm a hundred years ago, afforded opportunity for a practical education.

It is no reflection on the past to say that it is gone. The adequacy of the "little red school-house" has gone with the tallow candle and the ox-team, yet the condition of the typical country school, before the advent of the improvements of the last twenty-five years, is still, in the main, the condition of the majority of the rural schools to-day.

The school district served is small, perhaps on an average six square miles in extent. The only thought in the minds of the organizers was that

The little red school house of the past.

No great improvement in rural schools.

of shortening the distance to be traveled by the pupils in attending school. Sometimes neighborhood jealousies and individual scheming have been responsible for the division and subdivision of school districts.

With the smallness of the district naturally follows the fewness of children, often less than twenty, and occasionally less than ten. When the support of the school depends on a "per capita" state "apportionment," the funds for maintenance of the school are consequently limited. If the property valuation is low, as is usual in rural districts, where the principal taxable value resides in the land, and when the levy is limited by law, even a local tax fails to add a great deal to the maintenance fund.

Under these circumstances the school term is likely to be short, often less than six months. Any business conducted for only half of the year is not likely to prosper. Every school with only one teacher suffers from the necessary multiplicity of classes. But the teacher who can afford to work at a low salary for a short term is either young and inexperienced or is ineffective. The term being short, and the teaching inefficient, the interest in the school is evanescent. The children being few, the classes are small, some containing perhaps only one or two pupils. Hence the stimulus of numbers, and the mutual incitement to mental activity, on which teachers of large classes can depend for motive force to animate the recitation, are absent in the average country school.

The subjects taught often have only a slight

Disadvantages of the small "one teacher" school.

No stimulus of numbers in the small school.

bearing upon the practical needs and interests of the child, at least so far as the parents understand them. Under the circumstances, there is little reason to expect regular attendance of pupils.

**Frequent
change of
teachers.**

The teacher having failed in a season's work in the community, prefers to try another place next year, and the community is equally ready to try another teacher. Another thing that wears on the best country teacher is the lack of association with fellow-workers in the same field.

**Lack of asso-
ciation for
the teacher.**

Modern educational administration is not less ready than agricultural science to prescribe remedies for rural ills in its own field. In the first place it must be recognized that education is a business, which for its successful prosecution, demands adequate capital. It is common business acumen to invest money where it will bring a dividend. That education pays is a proposition so well established that no argument is necessary. The countries that have invested most liberally in education continue to do so most willingly. Entire dependence upon the bounty of the state, made possible by the foresight and statesmanship of the fathers, must yield to an intelligent provision for local needs by a local tax.

**Education a
paying in-
vestment.**

With sufficient funds the school term could be lengthened, say to eight months, the goal set by the Federal Commission of Education. This is possible even in the agricultural regions of the South, where the labor of children must be used for several weeks in the cotton fields. When the school is inefficient, parents are not apt to keep

**Necessity for
local taxa-
tion.**

children in school when their services are needed at home; but when the school is practical and efficient, most parents, whenever possible, will dispense with their services, in order to keep their children at school for the entire year.

With more funds provided, better salaries can be paid, which will, if used with discretion, secure better teachers. These teachers being better paid and for a longer term, can afford to invest in professional preparation for school work.

Better salaries, longer terms, better teachers, better schools.

The Consolidation of Schools.—There are still a number of difficulties which can not be overcome, even by an economical use of money. The small number of children in a little district, the consequent lack of sufficient numbers in a class to make the work interesting to teacher and pupils, the great number of classes, and the short time given on the daily program to any lesson, the limitation upon the number, variety, and advanced nature of the courses of work offered, all require a different treatment. The remedy that cures most of these troubles is the form of organization known as *consolidation*.

An ordinary school condition in some sections of the country is the location of four schools in a territory of four miles square, with an average of twenty-five pupils each. If, instead of these four, there were one schoolhouse in the center of this territory, with three class-rooms and an auditorium, the school could be taught by three teachers. This would make it possible to grade the school. A primary teacher could teach the first, second and third grades. An intermediate teacher

Advantages of the consolidation of small schools.

the fourth, fifth and sixth. The principal could teach the seventh grade and two grades of high school work. This condition is not ideal, but it would be a great improvement upon the average conditions of the present. With three grades instead of six or seven, the recitation periods could be of more reasonable length and still permit the course of study to be given without much abbreviation.

Since, under this new condition, there would be from ten to fifteen pupils instead of two or three in a class, a different spirit would prevail in the recitation. Instead of being a drag, pulled along by the teacher's sense of duty, it would be a thing of power that would move "under its own steam." The larger the number of pupils taught together, the more economical is the provision of laboratory equipment for the proper teaching of the sciences, agriculture, domestic science and manual training.

On the play-ground a hundred children can be directed more effectively than twenty-five. Girls and boys can have separate play-grounds, and the larger and the smaller can have games suitable to their ages, there being enough of all classes to make the games interesting. The development of school spirit is an easier matter in a large school, and this spirit has a profound significance in moral education.

The problem of the teacher's boarding, and his isolation can be solved by providing, in connection with the consolidated school, a teacher's home for the principal, who should be a man with a

Stimulus of numbers.

More effective direction of play.

The teacher's home.

Problem of board for the teacher.

family. The home should be large enough to afford a place for the assistant teachers to board.

Transportation of Pupils.—A problem of the consolidated school district is the transportation of pupils. In the hypothetical district described above, most of the children could walk, and community coöperation could easily arrange for the transportation of the others. Public transportation, at small cost, is provided in many places. Two conveyances driving five miles each, come within a mile of practically every point in the district. In a more sparsely settled country, provided with good roads, it would be possible to have the district larger, perhaps six miles square, and to displace more small schools, necessitating additional conveyance. Since drivers are not engaged for the whole of the day, the cost of transportation need not be heavy. Sometimes older students, by this means, may defray their expenses and attend the school. The wagons are covered, and in extreme weather are heated by means of a small stove. Children meet the wagon at the main road, on a definite schedule. The rules allow the wagon to wait for two minutes, but not longer. It has been the universal experience where children are transferred that tardiness, as well as absences, is comparatively rare in the consolidated school.

Transportation of pupils.

Results of transportation.

Under some circumstances the cost of the consolidated school is less than that of the smaller schools displaced, but cheapness is not the object sought. If the cost of the consolidated school were double that of the schools displaced, it would

Cost of transportation.

still be more economical, because of the far better results achieved through the longer term, more regular attendance, better teachers, graded work, and division of labor. The principles of consolidation are applicable under a great variety of circumstances. Sometimes a centralization of all advanced instruction in a district high school will be more feasible than complete consolidation. Sometimes one village can afford to transport its entire school population to another village four or five miles away.

Difficulties of consolidation.

A number of objections to consolidation may be found by those averse to the innovation. But the only serious one is the condition of the roads. Of course, there are sections of the country which are forbidding. However, the science of road-making and the increasing value of land make it only a matter of intelligent and persistent effort to convince any district of the desirability of good roads for many purposes besides education. In some instances consolidation has been a leading factor in stimulating road improvement.

The rural school course of study.

Course of Study for Rural Schools.—The course of study for rural schools should in some respects be modified to suit their special needs. There should be given considerable attention to the great industries of the open country, farming, dairying, stockraising, poultry keeping, apiculture, forestry, etc. The mechanical arts, woodwork, blacksmithing, saddlery, etc., might well have a place in the curriculum. Farm economics, farm accounting, and farm architecture are proper subjects for a rural high school. Domestic science, of a prac-

tical kind, and the allied arts, should not be omitted. But no book of itself is capable of rendering this instruction. Only the specially prepared teacher, who lives in the district permanently, can make the course effective. A school farm of ten acres should be provided, and this should become a veritable demonstration farm, and made to supplement materially the funds of the school. The school premises should be the beauty spot of the district, as is universally the case in the progressive countries of Europe.

The school farm.

A Large School Unit.—The unit of organization for effective rural education should be on a larger basis than at present, perhaps a fifth of a county (which for convenient distinction we may call a division), with larger consolidation districts, of from twelve to twenty square miles, so that there would be from ten to fifteen schools in a division. Each of these schools should be represented on the division board by a local trustee elected by the qualified voters of the district. The policies affecting the division as a whole, such as standards of efficiency in equipment, salaries, annual tax, the purchase of supplies, etc., should be decided by the division board in session. Purely local concerns, such as repairs, the nomination of a teacher, and anything in the nature of an emergency, should be the care of the local trustee. Each of the five divisions should be represented by a delegate on the county board, for the purpose of electing the county superintendent. This plan would eliminate the possibility of the county superintendent's nominating electors who would

Duties of the school board.

Duties of the local trustees.

favor his return. A plan of organization somewhat resembling the one here outlined obtains in Kentucky. It is believed this plan of organization would remove the evils of ignorant and tyrannical control, abolish backwardness, and tend to more permanent tenure of the teacher's position.

The rural school as well as the city school or any other enterprise using the services of many workers, needs supervision. Heretofore, the county superintendency, or school commissioner-ship, has suffered from the lack of professional basis and background. It has generally been a "political" instead of a professional position, which the limitations of local residence and other aspects of a political nature have prevented from accomplishing its greatest possibility for education. Doubtless, many of the superintendents have been fairly good teachers, though in some states few have had special preparation for the work of supervision. Doubtless, the great majority have been conscientious in their desire to do their duty by the schools and by the teachers under their direction. Appointment by a county board, rather than election by popular vote, would obviously produce some beneficial changes—greater permanence of tenure, wider field of selection for qualities that count for more in the actual work, the possibility of promotion from a small county to a larger county with greater salary—all these are to be regarded as measures that make a profession out of an occupation.

Supervision of Rural Schools.—With schools centered in larger districts, so that a county

Expert, professional
country
school super-
vision.

County super-
intendent
should be
appointed.

thirty miles square would have about fifty schools, the superintendent would be able to give supervision that would be really effective. The single visit a year is but little better than none, but by three or four yearly visits, the superintendent could be of real service to the school. Modern methods of conveyance would also add greatly to the superintendent's usefulness, for the time that counts is that which the superintendent spends in the school, and not that which is consumed on the road.

More effective supervision.

As to the exact way in which the superintendent can help the school on the occasion of his visit, there may be considerable diversity, dependent upon the temperament of the superintendent and upon local conditions. The formal speech and the "hearing of a class" are to be discounted as at best only forms of conventional courtesy. The general method should involve the forming of a detailed estimate of the school somewhat on the order of the score card.

The work of the county superintendent.

The following is submitted merely as a suggestion, subject to modification by experience. The perfect score would be one hundred points, thirty-five on physical and sixty-five on intellectual conditions, with a detailed value as follows:

Outside Physical Conditions	10
Fence in repair	2
Grounds free from paper and rubbish	2
Outbuildings in order	2
Play-ground apparatus	2
Scrapers at door	1
Cloakroom in order	1

Inside Physical Conditions	25
Floor properly swept	2
Furniture properly dusted	2
Personal cleanliness of pupils	2
Arrangement of books in desks	2
Sanitary drinking facilities	2
Suitable decoration	2
Good air	2
Comfortable temperature	2
Comfortable seats properly placed....	2
Clean windows with shades	2
Waste basket used	1
Fuel supply neatly kept	1
Stove polished	1
Blackboards free from scrawls.....	1
Records neatly kept	1
Behavior of Pupils	20
Orderly passing	2
Alertness in obeying	2
General play at recess	2
Courtesy	2
Orderly entrance at bell	2
Attention to work at seats	5
Refraining from unnecessary noise... 5	
Recitation	30
Readiness and enthusiasm of teacher. 5	
Spirit of class	5
Pedagogical skill	5
Pupils knowing the lesson	5
Use of good English	2
Clear enunciation	2
Complete answers	2
Social amenities	2

Naturalness of pupils	2
Community Coöperation	15
Active parents' and teachers' associa- tion	5
Regularity of attendance	5
Punctuality	5

The superintendent, accustomed to the work, can fill out the card with considerable accuracy in a short time. At the close of the day he can make a duplicate for future reference, and can send the original, with remarks, to the teacher. The teacher can know definitely in what the school is adjudged wanting, as well as in what it is commended. He can take his pupils into his confidence, with reference to the items in which their coöperation is necessary. The pupils will readily recognize that it is an enterprise in which they and the teacher have a common interest. If, on subsequent visits, the score stands higher, it will be a recognition of improvement, and *vice versa*.

The superintendent has one capital opportunity to help his teachers, namely, at the annual institute. Want of appreciation of its possibilities and the absence of intelligent scientific methods have heretofore made its value more formal than real, and only moderately successful. It has always had an indirect value socially, causing old and young teachers to mingle, by which the younger distinctly have profited by the experiences of the older, and the older ones have gotten enthusiasm from the young. This has probably been worth its cost.

**The county
institute.**

The institute can not give either professional

training or make much contribution to the teacher's scholarship, but it may strike the key-note for future progress in both. It can lend inspiration, by furnishing seed-thoughts for germination during the school year.

Specifically, it is better to confine the attention of the institute to a few related subjects, and give them a thorough lodgment and connection, than to present a multitude of ideas, however excellent in themselves, if unrelated and failing of general incorporation. For instance, an "English" institute might devote the first day to some leading principles of primary reading, the second to advanced reading, the third to language and grammar, the fourth to composition, and the fifth to literature. The following year might see a "Geography and History" institute, or one on "Method and Discipline."

The programme should be made with great care, in view of the needs that have become evident, and long enough in advance to get the right things prepared to meet these needs. The institute work of a state might well have a bureau in the State Department of Education, to provide expert direction. The State of New York has five strong educators, selected as institute conductors, the work in the various counties being spread over the entire school year.

The plan of the so-called Chautauqua institute is for a group of five neighboring counties to have their institutes at the same time. By a joint committee, these counties prepare a common program, at least as far as it affects the principal

Plans for the county institute.

Methods of New York.

The Chautauqua plan.

feature. This feature is to secure five strong school men, each to give two addresses at each institute. The work of each day is planned with these addresses as the principal feature. But there is great danger that too great dependence upon national celebrities will weaken the work of the institute, defeat its purpose, and make a simple entertainment of a splendid working proposition.

The superintendent should consider himself the apostle of educational progress, not satisfied to follow, but to lead bravely and persistently public opinion. To do this requires sympathy and tact, in order not to repel those with whom he must cooperate. The popularly elected superintendent finds this more difficult than the one appointed by a board.

The superintendent should be a leader.

The organization of school rallies is a very efficient means, but there is need of both preparing for the rally and following it up with correspondence and conferences.

Better buildings and more adequate equipment, better teachers, longer terms, larger salaries, protracted tenure, should be the achievements of the superintendent that afford him most gratification.

Finally, the superintendent should constitute himself a seeker for latent talent. With five thousand pupils in the schools under his supervision, there ought to be some who by his attention could be set on the road to higher usefulness. A county superintendent started the boys' corn club movement, which was afterwards adopted by the

Duties of the county superintendent.

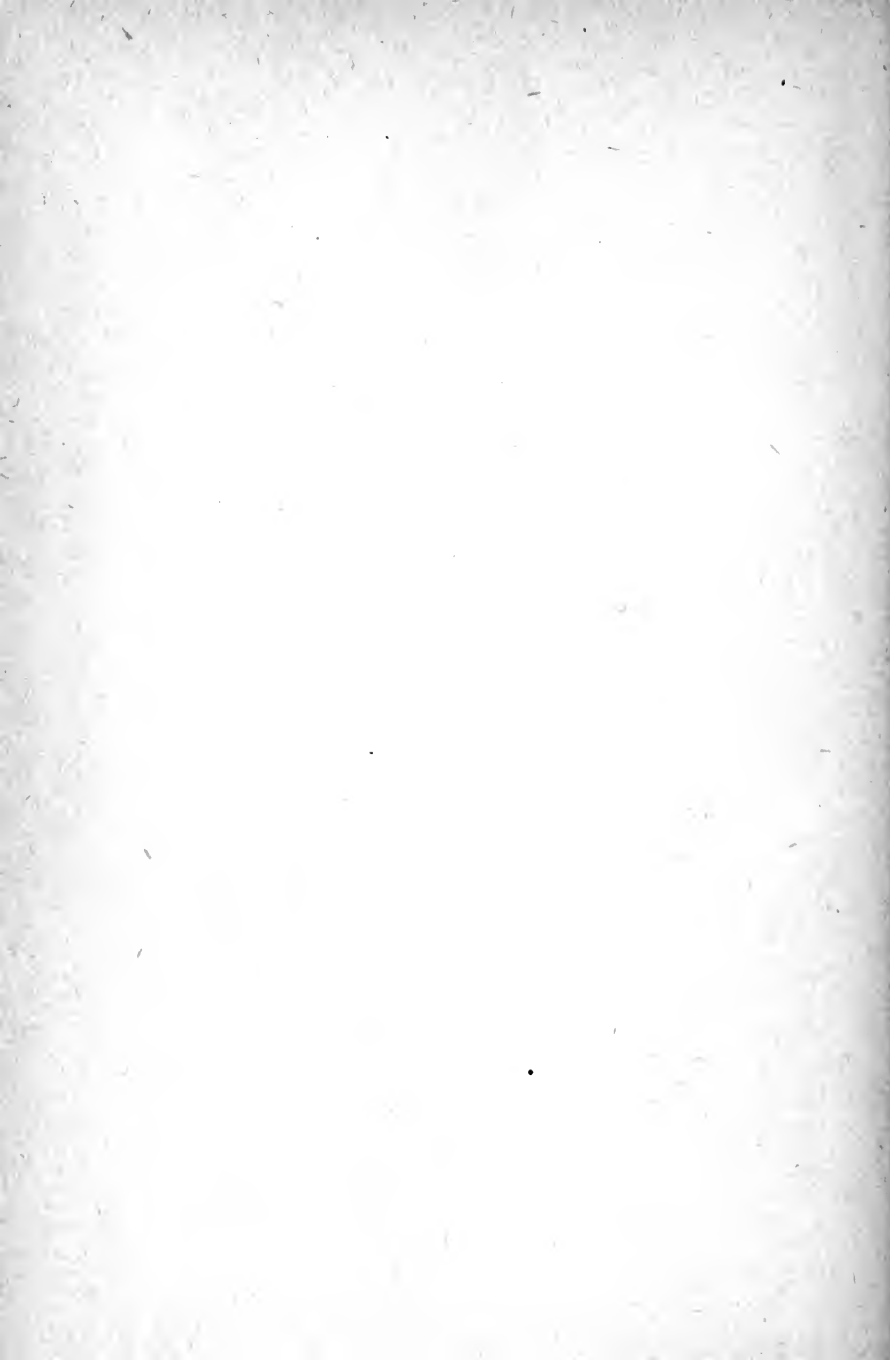
Federal Department of Agriculture. The superintendent, on the occasion of his visits, might well be prepared to say or to show something that would make his return anticipated with delight. No work he could personally do ought to be so delightful to him as this relation with the children.

The Schoolhouse as a Social Center.—A movement of late years, zealously advocated, is that of making the school the "social center" of the neighborhood. The school is adapted to this, because in it the community already has a unified interest. The larger the territory served by the school, the more valuable will the social intercourse be, and the wider the circle of friendships formed. Even one meeting a month does much to relieve the evils of isolation and monotony incident to country life. At least one room in the consolidated school should be seated with the modern movable chair desks, and a supply of folding chairs kept in readiness for convenience. A lecture and entertainment schedule can be arranged under some circumstances, or home-talent productions, with occasional exchange with another school, can be provided. The "refreshment" feature has not been outgrown, nor has the old fashioned "box-supper" lost its charm. Some definite object may be needed to furnish a motive for each meeting, such as a school library, in which the community may share the benefits. The reflex influence of this social enterprise can not fail to prove educationally beneficial.

By thus unifying the various activities and in-

What may be done with the school house as a social center.

fluences in the country, there is reason to hope that the rural school problem can be solved, and its solution will help in the solution of all the larger problems affecting residence in the country.



INDEX

A.

Abstraction, 123.
 Acquisition, 155.
 Adams, 136.
 Aeolus, 94.
 Aeschines, 79.
 Agassiz, 109.
 Agriculture, 111.
 Algebraic Method, 141.
 Amoeba—Reproduction of, 4.
 Angell, 227.
 Angelo, Michael, 148.
 Antaeus, 260.
 Apperception, 119.
 Application, 224.
 Aristotle, 261.
 Arlington, 96.
 Assignment of Lesson, 154.
 Assimilation, 155.
 Athenian Education, 15.
 Attention, 127, 148.
 Athletics, 257.
 Advantages of, 270.
 Divergent Views of, 271.
 Forms of, 267.
 Importance of, 269.
 Means of Improving, 269.
 Scholarship Requirement, 271.

B.

Bagley, 240.
 Baldwin, James, 238.
 "Barefoot Boy, The", 104.
 Bergen & Davis, 124.
 Betts, Dr., 132.
 Blackboards, 40.
 Bolton, Prof., 26.
 Browning, 79.
 Burbank, 96.
 Butler, N. M., 63, 64, 85.
 Scheme of Courses, 67.

C.

Calhoun, John C., 131.
 Candor, 253.
 Cartoon, 108.
 Cerebrum—Significance of
 Its Size, 11.
 Ceres, 93.
 Character, 155.
 An Essential Qualifica-
 tion, 73.
 Chinese, 257.
 Church, The—An Educa-
 tional Agency, 29.
 Classification, 123.
 Classrooms, Size of, 39.
 Cloakrooms, 41.
 College Entrance Require-
 ments, 61.
 Columbus, 134, 151.
 Comenius, 97.
 Comparison, 223, 224.
 Compayre, 227.
 Concept, 116.
 Formation of, 123.
 Concepts, Changes in, 120.
 Should Be Clear, 129.
 Conception, 126.
 Concrete to Abstract, 124.
 Congenital Traits, Transmis-
 sible, 10.
 Connotation, 122.
 Consolidation of Schools, 279.
 Advantages of, 279.
 Control, Elements of, 252.
 Conversational Method, 218.
 Correlation of Schools, 63.
 Cotton Seed, Its Products, 22.
 County Institute, 287.
 Chautauqua Plan of, 288.
 Methods of, in New
 York, 288.

- County School Superintendent, a Leader, 289.
 Appointment of, 284.
 Course of Study, 53.
 Culture, 18.
 Curriculum, 35.
 Should Be Directed by Competent Authority, 53.
- D.
- Deduction, 137.
 De Garmo, Chas., 68.
 Demonstrative Reasoning, 141.
 Demosthenes, 79.
 Denotation, 122.
 Dewey, Prof. John, 34, 151, 227.
 Diana, 93, 95.
 Dickens, 151.
 Dictionary, 130.
 Diogenes, 86.
 Discipline—Changes in View of, 250.
 Purpose of, 251.
 Draper, Dr. A. S., 64.
 Drawing, 107.
 Dutton, Dr. S. T., 55.
- E.
- Edison, 10, 96.
 Education—A Paying Investment, 278.
 Biological Basis of, 3.
 Continuous, 48.
 Defined, 14.
 Liberal and Vocational, 66.
 How Regarded by Ancients, 33.
 Standards of, 34.
 A Universal Right, 33.
 Educational Agencies, 23.
 Formal and Informal, 27.
 Educational Aims, 14.
 Educational Commission, 63.
 Edwards Family, The, 9.
 Eiffel Tower, 96.
- Electives, 69.
 Wide Range of, Impossible, 70.
 Eliot, Dr. Charles, 19, 110.
 Emerson, 76.
 Examination—Abuse of, 236.
 Value of, 237.
 Nature of, 238.
 Principles Governing, 239, 244.
 Exodus from the Country—Causes of, 274.
 Remedies for, 275.
 Experience—Not Always a Guarantee of Efficiency, 85.
 Expression, 155.
 Extension Work, 49.
- F.
- Family Traits, 8.
 Federal Commission of Rural Schools, 278.
 Field, Eugene, 157.
 Formal Discipline—Doctrine of, 56.
 Froebel, 258.
- G.
- Galileo, 134.
 Galle, Dr., 136.
 Genius, 10.
 Geometric Reasoning, 142.
 Generalization, 223.
 Gladstone, 131.
 Gordon, Dr., 9.
 Growth of the Teacher, 76.
 Gulf of Mexico, 101.
- H.
- Halleck, 139.
 Hamilton, Dr., 227.
 Harris, Dr. W. T., 68.
 Harvard University, 78.
 Heating, 42.
 Herbart, 220.
 Heredity—In Lower Animals, 6.
 Does Little for Man, 7.

- Herschel, 151.
 Home, The — Educational
 Function of, 24.
 Unit in Civilization, 25.
 Traditions Preserved by,
 27.
 Home for the Teacher, 280.
 Home Training—Importance
 of, 25.
 Home Work, 160.
 Honolulu, 96.
 Horne, Prof. H. H., 24.
 Huxley, 260.
- I.
- Ideas—Before Words, 151.
 With Words, 152.
 Illustrations, Use of, 209.
 Imagination, 118.
 Induction, 136.
 Perfect and Imperfect,
 140.
 Mathematical, 141.
 Inductive Philosophy, 105.
 Industrial Education, 34.
 Industrial Training, 111.
 Infancy—Period of, Lacking
 in Lowest Forms, 5.
 Helplessness of Human
 Infancy, 6.
 Necessity for Long Pe-
 riod of, 12.
 Interest, 148.
 Interscholastic Leagues, 266.
- J.
- Janssen, 21.
 Jenner, 21.
 Jesus—His Teachings, 230.
 Judgment, 126.
 Mistakes in, 133.
 Jupiter, 135.
 Juke Family, The, 9.
- K.
- Kallikak Family, The, 9.
 Keller, Helen, 116.
- Knowledge, Acquisition of,
 44.
 Different Degrees in
 Value of, 18.
 Should Be First Hand,
 100.
 Known to Unknown, 119.
- L.
- Laboratory Method, 103.
 Language, Useful in Thought
 Training, 151.
 Lesson, The, 154.
 Assignment of, 154, 155,
 156.
 Its Aim, 157.
 Its Subject, 157.
 Preparation of, 169.
 Proper Length, 149.
 Subject Plan of, 157.
 Lesson Assignment—Princi-
 ples for, 163.
 Time for, 166.
 Lesson Plans—Develop Good
 Habits, 176.
 Models of, 182, 184, 187,
 196, 200.
 Preparation of, 180.
 Provision for Summa-
 ries, 181.
 Supplementary material
 in, 181.
 Steps in, 173.
 Lesson Problems — Assign-
 ment of, 164.
 Le Verrier, 136.
 Light in Classroom, 41.
 Light—Velocity of, 135.
 Lincoln, City of, 36.
 Long, Dr. Crawford, 22.
 Loyalty, 87.
- M.
- Mammals—Care for Their
 Young, 5.
 Man—His Inheritances, His
 Individuality, His
 Family Traits, 8.
 Marconi, 96.

Mars, 94.
 Matagorda Bay, 101.
 Memory—Types of, 59.
 Mind, The, 117.
 Missionary—His Achievements, 30.
 Modern Education, 16.
 Monroe, 227.
 Montessori, 258.
 Morgan, 153.
 Mosquito—Life Cycle of, 4.
 Mothers' Clubs, 160.
 Moving Picture, 107.
 Music, 109.
 McMurray, 227.

N.

Nebraska, University of, 36.
 Neptune, 93, 138.
 Newton, 135, 151.
 Newcomb, Simon, 234.
 New York City, 263.
 Note Book, Abuse of, 114.

O.

Observation, 118, 123.
 Olympic Games, 266.
 One Teacher School—Disadvantages of, 277.
 Opportunities for Service, 21.

P.

Parent and Teachers' Associations, 160.
 Particular to the General, 124.
 Pasteur, 21, 96.
 Payne, Joseph, 239, 242, 249.
 Penalties, 255.
 Percept, 118.
 Perception, 117.
 Pestalozzi, 258.
 Phonograph, 110.
 Physical Training, 35.
 Pisa, University of, 134.
 Plasticity, Period of, 12.
 Play—An Agency in Education, 257.
 Apparatus for, 263.
 In Education, 257.
 Its Value, 261.

Poe, 10.
 Power, Means for, 45.
 Preparation,
 Of Lesson, 155.
 Presentation, 223.
 Promotion of Pupils, 234.
 Punishment, Principles Governing, 256.

Q.

Question and Answer Method, 214.
 Questioning—
 Faulty Method of, 128.

R.

Reasoning, 127.
 Recitation, The, 155.
 Its Formalities, 208.
 Formal Steps of, 220.
 Its Forms, 209.
 Its Meaning, 205.
 Its Rules, 207.
 Methods of, 212.
 Purposes of, 205.
 Roark, 227.
 Roemer, 135.
 Roman Education, 15.
 Rousseau, 258.
 Rural School Commission, 275.
 Rural Schools—Course of Study for, 282.
 Efficiency Test of, 286.
 No Great Improvement in, 276.
 Problems, 275.
 Supervision of, 284.

S.

School, The—A Social Center, 49.
 Its Chief Function, 44.
 Its Physical Conditions, 36.
 Its Site, 36.

Not Always the Leader, 32.
 Purpose of, 27.
 Relative Inefficiency of, 47.
 Professional Supervision of, 249.
 The Outgrowth of Society, 32.
 School Buildings, 38.
 Definite Plans, 38.
 School Furniture, 41.
 School Government, 250.
 School Grounds, 37.
 School Shades, 41.
 School House—A Social Center, 290.
 School Regulations—Principles Governing, 254.
 Means of Inforcing, 255.
 School Unit—Should Be Larger, 283.
 Seeley, 237, 243.
 Self Confidence, 253.
 Self Control, 253.
 Sensation, 117.
 Sense Training, 97.
 Sensory Education, 96.
 Service, 19.
 Shakespeare, 10.
 Skill, 97.
 Snedden, Dr. David, 66.
 Socrates, 214.
 Socratic Method, 214.
 Social Efficiency, 20.
 Solitude, Value of, 149.
 Spartan Education, 14.
 Specialization, Effectiveness of, 31.
 Standards of Measure, 224.
 State, The—An Educational Agency, 28.
 Stereopticon, 107.
 Struger, 227.
 Student, The—His Individuality, 179.
 His Perspective, 161.
 His Preparation, 173.
 Should Keep Study Schedule, 177.

Should Do Systematic Study, 176.
 His Viewpoint, 219.
 Study—Factors of, 172.
 Improper Methods of, 169.
 Motive for, 172.
 Superficial Study, 170.
 Supplementary Material, 174.
 Syllogism, 127.
 Sympathy, 253.

T.

Teacher, The—An Architect, 229.
 A Citizen of the Community, 80.
 A Leader in the Community, 51.
 His Attitude, 81.
 His Character, 73.
 Methods of His Growth, 78, 79.
 His Individuality, 235.
 His Personality, 81.
 His Rewards, 87.
 His Scholarship, 74.
 His Three-Fold Task, 178.
 His True Worth, 85.
 His Liberty, 232.
 Must Find Material, 162.
 Must Know His Subject, 167.
 Must Observe Principles, 232.
 Should Be Just, 236.
 Should Be Unhampered, 55.
 What He Should Do for His Pupil, 150.
 Types of, 82.
 Teaching—A Profession, not a Trade, 81.
 Evil Effects of, 31.
 Testing Results of, 228.
 Team Work, 270.

- Temperature of Classroom, 42.
 Thinking, 126, 145.
 Process of, 126.
 Topic Method, 214.
 Track Work, 265.
 Transportation of Pupils,
 281.
 Cost of, 282.
 Benefits of, 281.
- U.
- Uranus, 136, 139.
- V.
- Ventilation, 42.
 Vulcan, 94.
- W.
- Waterloo, 262.
 Webster, Daniel, 131.
 White, Dr. E. E., 238.
 Whittier, 103.
 Words Before Ideas, 151.
- Y.
- Youth, Habit Formation Period, 12.

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