THE SCIENCE OF EDUCATION

PALMER

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THE

SCIENCE OF EDUCATION

DESIGNED AS A TEXT-BOOK FOR TEACHERS

BY

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PREFACE.

THE general idea and purpose of this work are presented in the Introduction. But while it was designed in the first place to lay a foundation for the development of Methods of Teaching for those who are preparing themselves for the work of the schoolroom, the principles and laws developed are no less applicable to public speaking, family training, and every other influence by which thought, feeling, or voluntary action is developed or molded.

The main lines of thought, and the form of the work as a Science of Education are new. This has not been sought for the sake of novelty, nor to make it appear that there is need of the work; but, because it has been so universally felt that there was need of a work radically different from any thing that existed, this method of treating the subject was adopted, although it was new. But, because the field was new, it is not expected that it is free from errors that will expose it to just criticism, and because the end in view is truth, criticism is not deprecated. If it shall lead some one to correct its errors, and carry its truths to more important conclusions, it will have accomplished its greatest good.

It only remains for me to express my sense of obligation to the Publishers for many acts of courtesy and real kindness in preparing to present the work in an appropriate form; and to Dr. Lemuel Moss, a college classmate and esteemed friend, for important criticisms and suggestions.

FREDONIA, N. Y., *September*, 1887.

CONTENTS.

INTRODUCTION.

Not to be studied critically, but to be read carefully.

THE purpose of this Introduction is to bring the reader to the point of view from which the following treatise was conceived. This will most readily and naturally be effected by setting forth the way in which the author was himself led to this point of view; hence an allusion to personal experience seems necessary, which would otherwise have no significance.

2. It has been common to base methods of teaching on the science of Psychology. The end which these methods have in view is the development of the mind to what Psychology declares it ought to be. The one universal law of methods is growth by exercise. According to this the study of methods becomes an inquiry into the best means and manner of exercising the various mental faculties. Grant that this fairly well marks out the province of methods, what help can Psychology give in such an inquiry? It names the faculties to be exercised, but it does not tell how to exercise them, which is what methods seek to know. In the first place, the science of Psychology is the science of an accomplished result, the mind in a developed state; methods of teaching apply to the process by which that result is reached. Psychology is a test of

methods put into practice, but furnishes no principle to determine what they shall be. To make the science of Psychology the basis of the art of methods is like making the science of Botany the basis of the art of farming. There must be a science of agriculture apart from the science of vegetable growths, or systematic farming is impossible. In the second place, the same subjects and methods of study apply equally well to the exercise of different faculties, so that the classifications of Psychology do not furnish fundamental distinctions for methods. Methods must be subject to the test of developing all the faculties, but do not necessarily vary to correspond with them.

3. When the author of this work was compelled by his position as teacher of Didactics about twenty years ago to give critical attention to the foundation principles of the teacher's profession, the above difficulties presented themselves to him, and he asked if there was not a science of the process of mental development, apart from the science of Psychology; a science of mental growth, on which the art of methods might be founded. Much had been done by educational writers in the discussion of the important principles of their profession, but there was no systematic treatise that was recognized as setting forth the processes of mental growth in scientific form. The greatest want seemed to be a starting-point, a general law that would unify and harmonize all the principles that had been developed into a consistent whole. To find such a law was the first effort. In his search the author first began to study the steps of his own mental advancement. He had always considered it the most helpful thing ever done for his own education that as soon as he had learned to read he was set to learn the classification of letters and the analysis of

words, as laid down in the first part of his spelling-book. A habit of analytic thinking was thus established, which from that time made analysis as easy and natural as reading a story. Two years later, a winter's work in trying to master Arithmetic to the Rule of Three made exercise in combining numbers equally easy and natural. Habits of analytic and of synthetic reasoning seemed firmly established, and on these two processes depend all thought. But whatever might be involved in these processes, as yet there seemed to be no unifying principle between them to use as the foundation of a science, and they had not been made to cover the ground of perception and the other lower faculties of the mind.

4. Beginning next with perception, the lowest act of consciousness, it was not far to the conclusion that the consciousness of difference, or discrimination, is the first distinct mental act. This act seemed to correspond to analysis in the higher faculties. But discrimination is not merely the perception of different things,—it is the perception of things as different. This implies comparison, and comparison implies a class to which the things compared belong. To make a discrimination, the mind must develop a sense of unity. The possibility of discrimination implies a capacity for unification. Objects that differ are what they are without reference to each other. They are put together only in thought, and this can come only from a natural tendency in the mind itself to unify. But unification is essentially synthesis, and we are thus brought to a view of all mental development as a discrimination of objects under such unities as the mind is capable of developing from the tendencies involved in its own constitution. This thought was somewhat elaborated in a short paper read at a teachers' association, and the essay is presented here, with a few omissions for

brevity, because the work which follows takes its start from this point.

Analysis and Synthesis in the Exercise of the Understanding.

5. It is the natural effort of the mind to seek to unify thought. This is its bent, so to speak. As a young shoot, bent from its upright position, ever seeks to bend back to its normal direction, upward towards the sun, so the mind, when drawn to distinguish between this and that, ever struggles to build up this and that into a unity together and into a unity with itself. Whether we are able to explain this tendency or not, it manifests itself as a fact in all the operations of the mind.

6. In perception, we classify objects into larger and larger groups, always seeking for a common thought that is bound up in each individual, by which we may think them all together as one. In memory, all conscious experiences are associated together into such a consolidated unit that when one of these experiences is brought back into conscious remembrance, that will bring another, and another will follow in the train, and the mind will go on and on, seeking, as it were, to complete in conscious memory a unity of all past experiences. All the laws of memory have for their basis the common principle of an underlying unity in the association of thoughts. In imagination the mind makes pictures, more or less harmonious, always as units. In the act of comparison,—which is the basis of judgment and reasoning,—things are unified; while in judgment and reasoning, the conclusion is nothing but an identification. In the first place, then, we must say that synthesis is a natural impulse of the mind, spontaneously following the apprehension of things that are different.

7. The unification spoken of is a unification of thought and not of things. The sun and his attendant planets are held in mind as one, and we call them the solar system. But they are not seen as one in the same way by the shepherd lad who looks upon them only as he looks upon the other specks in space. To him they are only stars. The planets do not of themselves form a unit, but the relations between them, which the mind alone sees, is the bond by which they are unit–ed; or, as we say, united. In these relations they exist as in a medium every-where identical, which belongs neither to one nor to another, and which comprehends all in a common unit of thought.

8. These relations can only be thought,—they can not be represented by objects. But if they can not be represented by objects, there can be no association of words with objects to make it possible for them to be represented in language to a mind that has not first thought them for itself. The parts or elements that go to make up a unit may be arranged in ways to make the proper unification easier, but each person must go through the process of uniting them himself. No one can unify for another. To pronounce words, and think they will help the process, is folly, for they only distract. No vicarious thinking done by one will build up intellectual structures in the mind of another. We must give as our second conclusion, then, that all construction, or synthesis of thought, must be sought in the self-energy of the mind.

9. But, although the mind has a natural tendency to build, the process requires pre-eminently time and attention. In the first place, it requires time. The units and parts or elements that constitute it are simply to be held in mind until, by the spontaneity of thought, the parts or

elements are built into the unit. If the mind does not build as fast as the material is presented, we can only wait.

10. The second thing named as required for synthesis is attention. The result obtained in unifying must be definite and distinct from every thing else, or as a unit it is valueless. When an object or thought is presented for analysis, it is presumably obscurely understood in some of its aspects or it would not require analysis. It is analyzed to make it clearer. But the unit of synthesis is nothing if obscure,—the elements are not fully unified.

11. The elements which we build into wholes are of two kinds,—fixed and variable. The elements of Mathematics have the same value alone and in combination. The mind is capable of building them together, and it may know the exact value of its product. But the elements of speech are of a different nature. The letters of a word have their power determined largely by their combination with each other. An elemental sound has no meaning for us, and it becomes expressive only in connection with other sounds. Any word is ambiguous in sense unless united with other words. The mind possesses the subtle power of building wholes from these elements, but the process is different from that in the case before spoken of. In this case, the whole is no more what the elements make it than the elements are what the whole determines they must be. We must seek such values for the elements as will make the whole consistent. This requires that we have the whole in mind, though it may be obscurely, and examine at the same time the elements in relation to it and to each other. This is analysis. The complete process requires, it is true, both analysis and synthesis, but the main energy is spent on separating and discriminating.

12. When analysis and synthesis are compared together, it may be said that the mind has no such natural tendency to analyze as to combine. It is forced to it only by the impression of differences which require analysis in order to find identities by means of which to unify. An illustration of the natural tendency to build up rather than analyze may be seen in the growth of the sciences. First, out of a multitude of facts the mind is able to put a few together, and the result is called an hypothesis. In this it is likely to rest for a time, but it gradually analyzes this hypothesis and other facts which it is able to unify, and it forms what is called a theory. When the analysis is so complete that all the facts that belong together are united by a recognized principle, the mind settles in an established law. Take for example the Nebular Hypothesis. It supposed that all the heavenly bodies were evolved from one mass of matter. This was a unification of the stellar system with very little knowledge of the parts related together. The authors of the Hypothesis did not even inquire if the matter composing the different stars was all of the same kind. And the minds of men in general grasped much more eagerly after the hypothesis that satisfied them with so vast a unification, than they sought to understand the nature of the elements united. They clung to the Hypothesis, but made little effort to establish it as a theory, or to build up a science upon it. In the course of generations, a few have succeeded in analyzing the rays of light in such a way as to show that the matter is identical, and the Hypothesis takes a long step forward in the direction of theory or perhaps law.

13. In the first place, then, analysis must be forced upon the mind by experience. In the second place, the value of analytic effort in strengthening the mind lies in

the fact that it is a drawing of the mind away from its natural rest in unification, and thus calls its powers into greater exercise. In the third place, the mind must be allowed time to unify what it has analyzed, or, like an overstrained bow, it will be weakened, and become content to drivel and haggle about unimportant differences.

In conclusion, it may be said:

First, That synthesis is spontaneous, while the mind must be stimulated to analyze.

Secondly, That analysis and synthesis must go together.

Thirdly, That time is required for synthesis, and the mind must be held to do the work for itself. The step is short but difficult, and no necessary expense of time should be counted too great to secure this end.

PART I.

GENERAL CONSIDERATION OF EDUCATION AS A SCIENCE.

CHAPTER I.

LAW, PRINCIPLE, AND RULE; AND SCIENCE, PHILOSOPHY, AND ART DISTINGUISHED.

THERE is much confusion in the use of the terms science, philosophy, and art. The terms science and philosophy are not carefully distinguished even by the best writers, although the growing necessity is generally recognized for a clearer distinction than is usually made. Philosophy is variously defined as the Science of Sciences, the Science of the Absolute, the Quintessence of Science, and so forth. We use the term Natural Philosophy to designate the physical sciences, and excite the ridicule of German writers by speaking of the instruments of scientific experiment as philosophical apparatus.

Again, the distinction between science and art must be much obscured, when the same subject is called both an art and a science, and this is done in many text-books, and no effort is made to set forth any part as belonging to the one or the other. A science may be tested and illustrated by its application to art, or an art may be based on the laws of science; but if a subject is treated both as a science and an art, a portion of the treatment should be devoted to the one end, and another distinct portion to the other.

2. In order to gain, at the outset, some conception of the scope of what is meant by the Science of Education, it is evident that the term science needs definition.

To distinguish it from philosophy and art requires an understanding of the terms law, principle, and rule; and these words involve as much confusion as the others. It will, therefore, be necessary to distinguish these first.

3. RULE.—This word means, first, a guide, a material edge or face, by resting against which a moving object will take the shortest distance between two points. It marks the limit of our ability to make a straight line, or to find the shortest distance spoken of. In the second place, the word is applied to action. When two persons have the same thing to do, and one does it more easily and more quickly than the other, the shorter method is adopted as a guide or rule for doing that thing. A rule of action, then, like the material rule, is a guide or direction, by following which a given thing can be best performed. A perfect rule marks the limit of facility or economy in work.

4. PRINCIPLE.—The term principle is from a Latin word which means leader, head, chief, and is used in an absolute and in a relative sense.

a. It is a conception, or that in nature which is supposed to correspond with a conception, that has a leading or controlling influence in a particular thought or line of reasoning. In its absolute sense it is an ultimate element of analysis, or an ultimate form of consciousness, a conception which can not be analyzed by us. It may be something thought of as existing, such as a quality of matter, a faculty, life, physical force, or the conception of such an element, and it is then called a principle of being; or it may be the conception of a relation, such as cause and effect, justice, law, and it is then called a principle of the understanding. On the development of these fundamental principles all our knowledge rests, perception depending upon principles of being, and reasoning on principles of the understanding. They are the limit of thought in every direction, and though they may not be ultimate in themselves, they are ultimate for us in thinking.

b. But we do not always go back to ultimate principles in considering a subject. The value and construction of a steam-engine depend upon the power of steam and the action of levers, and we say the principles of the steam-engine are the expansiveness of steam and the lever. We do not need to analyze these in order to understand the engine. Any force, mode of action, or material form that enters as a unit into that which we are studying, is a principle in relation to that thing, and is particularly called such if it has a leading influence in determining its character. This is the more frequent use of the term. In this sense, a principle is one of the results obtained in the last analysis of a subject required for a complete understanding of it. Pure mathematics must go back to first principles, or the ultimate conceptions of the mind; but applied mathematics, like Surveying and Astronomy, may rest upon principles derived by mathematical reasoning.

5. LAW.—*a*. When a principle is to be used as a fixed standard of judgment, it is limited to such a series or class of objects as show uniform relations to each other, and stated in terms of the objects related; and the principle thus limited and applied is called a law. For instance, when the principle of justice is applied to contracts we have the law of contracts, setting forth the obligations of two parties under given conditions, and laying a penalty on either who may fail to carry out his part of the contract. The principle of causation is applied to the production of heat, and we have the law that a given amount of coal, when consumed, will pro-

duce a given amount of heat. We are not always able to reduce a principle to satisfactory laws, but a law must always involve a principle. The value of a law depends upon the extent and accuracy of its embodiment of a principle or principles.

b. The ancient Greeks developed more of what may be called the ultimate principles of nature and of human action than all other peoples of antiquity, if the history that has come down to us is a reliable test, and they set them forth most sharply defined. From these principles the Romans developed laws, and were, above all other nations, a nation of law. Even their language was marked by this characteristic. If we accept the etymology of the Latin word for law given by Mommsen, we shall find in that the fundamental idea here presented. He supposes the word *lex*, *law*, to be derived from a word meaning *to depute*. A king required his subjects to obey his will. But the circumstances in which men were liable to be placed varied so greatly that, however well they might understand the king's disposition, they could not always tell in his absence what his will was. To make provision for this uncertainty,—out of deference, as it were, to the ignorance and inability of his subjects,—the king set forth a statement of what he would always require, exact, or inflict, under given circumstances. This statement was to represent his will to his subjects, and was to be so regarded, both by him and by them. In a similar way, the absolute nature of matter and force is unknown to man; he can not trace objects, actions, and motives to their ultimate elements; but there are recorded in the constitution of his reason laws which represent to him, within definite limits, when developed into consciousness, the mode in which matter and force act under certain circumstances. A law does not attempt to represent a principle in more than one aspect, and, in our imperfect apprehension, does not generally represent this aspect exactly, or there would be no exceptions. A law can not be more true than the principle on which it rests, but it is more definite in the understanding, and it is held more clearly in consciousness. Could we stand at the source of all physical and spiritual changes, with the ability to trace each active power from event to event through the entire series, we would need no law to help our understanding. The necessity of law implies the impossibility of exact knowledge of the reality itself. But inexactness does not imply unreality. The conceptions which we call principles must be supposed to have reality for their cause. The study of principles is a struggle after a knowledge of reality. In the impossibility of exactness in this knowledge we seek to read the laws established for us, but we are warned to be ever on our guard against supposing them to represent things for which they do not stand.

c. A law is sometimes called a rule of conduct. Strictly speaking, the rule is derived from the law. On the other hand, a rule of conduct is called a moral law. Thus, "Thou shalt not kill" is called a law. But it is in the form of a rule, and becomes a law only when the penalty is added: "Whosoever shall kill, shall be in danger of the judgment." As the material rule does not tell where the pencil will go if it strays from the line, so a moral rule does not include the penalty of disobedience. It only directs conduct. But a moral law, fully expressed, sets forth the relations between conduct and its consequences.

d. A law is also distinguished from a principle in that a principle is a simple conception derived by analysis, while a law is the synthesis of many objects through uniform relations.

e. Principle and rule are clearly distinguished in that the principle on which a rule is based represents a relation; the rule regulates conduct in view of that relation.

f. As a rule is the limit of facility in action, and a principle the limit of discovery in perception and thought, so a law is the limit of exactness in reasoning.

6. ART, PHILOSOPHY, AND SCIENCE.—These differ from each other alike in respect to their origin, their aim, their method, and their form of statement.

a. *Origin.*—An art begins in the discovery of different methods of producing a given effect; philosophy, in the discovery of differences in that which has only been known previously as one; science, in the discovery of uniform relations that give a common aspect to things known before only as individual.

b. *Aim.*—An art seeks economy of production; philosophy seeks the causes that make a thing to exist, or to be what it is; science seeks an orderly arrangement of things based on a uniformity of relations which they exhibit.

c. *Method.*—An art is empirical; philosophy is analytical; science is synthetic.

d. *Form.*—An art is formulated in rules; philosophy, in principles; science, in laws.

7. GENERAL CHARACTERISTICS OF PHILOSOPHY AND SCIENCE.—Some things that belong only to Philosophy are frequently demanded of Science, and some things that belong only to Science are demanded of Philosophy. The peculiar characteristics of each should be considered in criticising the merits of any individual work, that more may not be demanded of it than properly belongs to it to do.

a. The word Philosophy, meaning *the love of wisdom*, is the product of Greek intelligence and enterprise, and it breathes the loftier aspirations; the word Science, *discriminating knowledge*, is a development of law-prescribing Rome, and it brings more of an air of assurance and authority.

b. A Science proper is confined within narrow and definite limits, and should not be held to go outside the facts that constitute those limits to find either their cause or purpose; on the other hand, if Philosophy says that the whole plan which Science has discovered must have had an origin in a personal intelligence, Science is not competent to deny the claim.

c. Philosophy is ever in search of higher truths, and is the more stimulating; Science seeks greater exactness, and finds out more of the serviceable elements of knowledge.

d. Philosophy seeks the truth for the love of it, yields its opinions reluctantly, makes a difference in the value of different truths, and is conservative; Science is iconoclastic. It guards with equal jealousy every fact within its realm, and is willing to tear down its entire structure for a newly-discovered fact, and build anew to make a fitting place for the foundling.

8. Order of Development.—The necessities of life must have developed an inquiry after economy of production before the thoughts of men were given to any other consideration. The discovery of principles must have preceded their embodiment in law, and science must always wait on art and philosophy for the elements with which it builds.

9. Stages of Science.—*a.* Every science must have its philosophical stage in which its laws are discovered; its experimental stage, in which its laws are tested and established; and its constructive stage, in which laws are applied, and the elements of the science are arranged in order. The first stage is strictly philosophy, and should

not be named here but that every treatise on any science is compelled to enter extensively into philosophical analysis, to develop the principles on which its laws are founded. It may also suggest that the method of what is called scientific discovery is philosophical or analytical, while the method of scientific proof is synthetic; and thus, in order to complete a scientific thought, analysis and synthesis must be united, as was suggested concerning every complete thought in sections 4 and 11, Introduction.

b. There is, also, what may be called the practical stage of science; that is, a stage in which the science is applied to an art. This is all that can be meant when it is said of any subject that it is both a science and an art. The statement should be enlarged somewhat, and it should be said that every subject worthy the attention of man is alike philosophical, scientific, and practical. What we want to know of a particular treatise is, which of these ends it aims at, for its method must vary with its aim. If it is the aim to apply the laws of a science to the development of the rules of an art, the subject is no longer treated as a science, strictly speaking, but as an art, considered from a scientific point of view. Art, which we found beginning before philosophy, we now find in its complete development, following science; but the test of its rules will still be their actual use.

10. The Science of Education.—Education has been largely but an empirical art. Its philosophical aspects, however, have sometimes engaged the brief attention of profound thinkers. During the past few years it has been seeking to emerge from the stage of philosophical inquiry and take the form of scientific laws, that it may furnish a surer basis for the art of methods. One of the greatest reasons for the slow progress of the science is the failure

to find a fundamental principle that could be made the basis of a general law. This failure has not been because the principle was so far to seek, after the philosophy of Kant, but because those who have treated of this subject have mainly had the practical end of education in view, and it has seemed easier to build up a system of methods on the foundation of an established Psychology, than to create a new science, embodying the principles of mental development, and make this a basis for methods. But the lack of unity and completeness in every system proposed has led to an urgent demand for a science adapted to meet the wants of the art, and a study of the processes of mental growth should be abundantly able to satisfy this demand.

CHAPTER II.

EXPLANATION OF TERMS.

IN **seeking for a general principle** for the science of education, the discussion will involve the use of some terms which ought first to be defined.

1. QUALITY, FACULTY, AND ATTRIBUTE.—These words are applied to the form or mode in which things that are manifest their existence. They are sometimes used interchangeably, but Quality is especially applied to matter, Faculty to mind, and Attribute to Deity. Hardness is a Quality of matter, memory a Faculty of mind, and wisdom an Attribute of Deity.

2. INTUITION.—*a.* This word is derived from a word meaning to look upon. It is the act of the mind when brought into the most immediate presence of an object of knowledge. Acts of perception and self-consciousness are Intuitions, and the knowledge immediately gained by these acts is called Intuitive. The word is also sometimes applied to the power of the mind by which such knowledge is gained.

b. This word, and many other words of the same ending, have three classes of application, designating first, an act, secondly, the product of the act, and thirdly, the cause of the act.

c. Two conditions are necessary to constitute an Intuition. First, the object of knowledge must be individual; and secondly, it must be immediately presented to consciousness. Whatever knowledge answers these two conditions is Intuitive, however it may be gained. Some hold that there are higher Intuitions than those included in perception and self-consciousness; others give a broader meaning to the word Intuition, while they hold that the mind has conscious relations only to itself in different states. There are other uses of the word which need not be discussed here.

3. Abstraction.—To Abstract is to take away. As a philosophical term, Abstraction denotes, first, the act of withdrawing the mind from one feature and another of an object presented to it, until all the energy is centered upon a single characteristic. In the second place, it designates a notion of the feature on which the mind is fixed. Elementary principles are the purest Abstractions, for such a notion can not be divided.

4. Notion, Idea, Image, Conception, and Concept.—*a.* These words are used for the representations the mind makes to itself of objects of thought. These representations come from intuitions, immediate or recalled, with the addition of such conditions as reason may affirm to be fitting or necessary.

b. Image is the most definite of these words. It designates the mental picture of a concrete object, and is either the reproduction of an intuition held vividly before the mind, or a reproduction with such changes or combinations as reason or fancy may suggest.

c. The other terms are used interchangeably, but different writers make specific distinctions to give clearness to particular views. The terms Notion and Idea are the terms of common language. Notion is the more general, and is used of inexact or general representations. Idea is used when a more clearly defined or specific representation is in mind. It has the most important history, perhaps, of any word in the vocabulary of philosophy. At present it has no technical use in our language, though some of its former force remains in the derivatives ideal and idealism.

d. Conception is from a word that means to take together. It implies, generally, a combination of elements, qualities, or attributes, bound together by some mental process. It denotes the act, the product, or the power of conception. In order to avoid ambiguity in the use of a term so important and so hard to gain a clear meaning of at best, the word Concept is often used in philosophical writings instead of Conception in its second sense.

5. Truth.—This word signifies the exact agreement between a representation, such as a statement, a concept, or a figure, and the thing represented. Thus, we say there is no truth in a statement when it does not conform to facts.

6. Real and Rational.—The term Real designates, philosophically, that which is conceived of as having actual existence, as opposed to relations and logical conclusions. Real knowledge, philosophically, is knowledge of that which exists, and can come, in the first instance, only from intuition. Rational knowledge is that which is gained by the exercise of the reason. What we know about the qualities of matter and individual objects is Real knowledge. Knowledge of cause and effect, of mathematical truths, and of other things that furnish no other basis of belief than the necessary laws of thought, is Rational knowledge. The notion of a circle or of causation is a Rational concept.

7. Analysis and Synthesis.—*a.* Analysis and Synthesis are either actual or representative. They are actual when applied directly either to things that exist or to

rational concepts. They are representative when applied to concepts that represent things that exist, or to real things that represent rational concepts. A tree and the concept of a circle are subject to actual Analysis, the one being real and the other rational. The idea of a tree, and a drawing made to represent a circle, are subject to representative Analysis.

b. Real Analysis, that is the analysis of things, is the separation of complex objects into elements or constituent parts that have an individuality. Real Synthesis is the union of individual parts or elements in such a manner as to form a whole. Rational Analysis, that is the Analysis of a rational concept, is the separation of a concept into its constituent elements, and rational Synthesis is the union of elements into a rational whole. A cup of water is not Analyzed by pouring out a part of it, for no individuality is gained or lost. A plant is not Analyzed by simply cutting it into pieces that may be put together again. But if the roots are detached, the bark removed, the leaves stripped off, and so forth, the parts have a character of individuality, and the process is properly a real Analysis. In the burning of a candle oxygen and carbon unite and produce carbonic acid. This is a real Synthesis.

c. If we take the rational concept of a triangle, and bring it into distinct consciousness, we find that it contains three lines as individual elements, and these meet in such a manner as to form three angles. In finding these individual elements in our concept we perform a rational Analysis. If we take the rational concepts of three straight lines and put them together in thought so as to form a triangle, we perform a rational Synthesis.

d. If, instead of actually making a real Analysis and Synthesis, we make them intellectually, they will be representative. For instance, if, instead of actually separating a tree into its constituent parts, we think of a tree, and by means of representative language separate the image of it in our minds, we perform a representative Analysis of that which is real. Again, if a child sees a burning candle and forms a notion of it only as a bright object of a certain form, and afterward touches the flame, it will add to its previous concept of the flame the element of heat. This intellectual Synthesis is representative of that which is real. In the same manner the real may be used to represent rational Analysis and Synthesis. The idea of the circle or triangle, and the idea of their elements, are represented by real lines and figures. The Analysis and Synthesis of these are made to represent the Analysis and Synthesis of the concepts themselves.

8. Empirical, Inductive, and Deductive.—*a.* These words apply both to knowledge and to methods of obtaining it. Empirical knowledge comes directly from experience. Our knowledge of the taste or color of this or that thing which we have tasted or seen is Empirical. Our knowledge of events which we have witnessed is Empirical. It is the beginning of all knowledge, and the only source of a direct knowledge of facts. But the possibility of this kind of knowledge is limited. No one person could gain much knowledge if he depended on experience alone. Experience is said to be a good teacher, but a dear one. It is dear in this respect, that the cost in time and energy required to learn a few facts individually, in which way alone they are learned by experience, is much greater than the cost of learning the same number of things with the aid of reason. In consequence of the laboriousness of the Empirical process, the mind follows rational processes when possible.

b. There are two methods of arriving at results by the exercise of reason, called Induction and Deduction. By the first we infer a general truth from a particular fact; and by the second we infer a particular fact from a general truth. When a child first touches a candle-flame and finds it hot, he learns a fact by experience. This is Empirical. When he draws the inference from this that all candle-flames are hot, he makes an Induction. That it is natural to make such an Induction is evident, because all children avoid candle-flames when once they have been burned by one. If one experience is not sufficient, a second and a third will make the inference more certain. Sometimes many examples are necessary to justify a general conclusion; and it should be said that an Induction requires a sufficient number of known examples, however many this may be. It is held by some that to make an Induction strictly logical the general conclusion must have for its basis an actual knowledge that each of the particular examples agrees with the conclusion. But in this case the knowledge is Empirical. If, for instance, it has been observed that each known planet moves around the sun from west to east, and in consequence of these observations the proposition be laid down that all known planets move in this direction, it would be called a logical Induction. But it is difficult to see how this differs from the knowledge of experience, and why it is not strictly Empirical. But if it be concluded from what has been observed that all planets, including those not discovered, move from west to east, the inference is something more than Empirical. It may be distinctively called Inductive.

c. In the second method of arriving at conclusions by the reason, we infer a particular fact from a general truth. If a child has learned the general truth that all candle-flames are hot, and perceives one dangerously near, he infers that this is hot. This is a logical Deduction. It is knowledge not contained in the general knowledge, for a part of it is Empirical, being derived from the sight of the flame. The Deduction consists in adding to the Empirical knowledge of this candle the notion of heat drawn from the general knowledge.

d. Induction and Deduction are called, the one synthetic, the other analytic. But the concluding act of each is synthetic. This should be so if it is true, as generally held, that analysis and synthesis always go together; and if what was said of analysis and synthesis in the Introduction is true. It was there held that all mental development depends upon the discrimination of differences in a unity which the mind builds up by synthesis in consequence of the discrimination, and in the very act of seeking to make the discrimination clear. The finishing stroke of every complete mental act is synthetic. In Induction a particular notion that has been obtained by the analysis of one thing, is added to the general notion of the class to which the thing analyzed belongs. In Deduction, a particular notion that has been found to belong to a class of things, in general, is added to a particular thing that belongs to the class. In Induction the idea of the class, in Deduction the idea of the individual is built up by synthesis.

9. A Priori and A Posteriori.—These terms have a long and varied history. It will only be necessary here to state their present commonly accepted philosophical use. They are applied to reasoning and concepts.

a. A Priori reasoning is reasoning from antecedent to consequent, or from cause to effect. A Posteriori reasoning is the opposite. A Priori concepts are said to be developed by experience, but not from it. The notion of a circle is an example. Their characteristic is that from the constitution of the mind we can not think them to be different from what they are, under any circumstances. We can not think two and two into five, nor think of any intelligence as able to do it. The concepts are held to be necessary and universal. A Posteriori concepts are such as are made to conform to the facts of experience, like the concept of a horse or a tree.

b. The question of the validity of this distinction between the two classes of knowledge is called the battleground of philosophers. Whether all that is claimed as to the distinction is true or not, a brief reference to the discussion of analysis and synthesis will show that there is at least a difference broad enough to require the use of different specific terms, if we are to speak of the things themselves with precision.

c. An A Posteriori concept, if it represents something that exists, as it must do if it conforms to objects of experience, is a more or less perfect representative concept. It may represent the object of a simple intuition, like a tree that has been seen; or an element that has been obtained by analysis, as a germ; or a unit of synthesis, as the flame of a candle. In any case it is representative. If there is inaccuracy in the agreement between the concept and the object known, the error must be in the concept, for we can not think of the object as not being what it is. An A Priori concept, if it be the product of reason, as has been supposed, is not representative of any thing known to exist; but that which exists, the figure of a circle, for instance, is representative of the concept. If there is a lack of agreement here, the inaccuracy is in the real figure and not in the concept. The concept, if distinct, can not be inaccurate, or if it could, no more accurate standard can be conceived with which to compare it.

10. Ego, Non Ego, Subject, Subjective, Object, and Objective.—The term Ego is used as a noun in the third person, to represent I or self, and Non-Ego designates any thing that is not self. Subject represents the mind as exercising some power of knowing, feeling, or willing, and the power or activity is said to be subjective with respect to the mind. Object represents that on which the mind acts, and whatever belongs to the object is called Objective. Heavy, sweet, and so forth, are used Subjectively when they designate an effect in us, and Objectively when they designate the qualities of the objects that produce these effects.

CHAPTER III.

WHAT IS EDUCATION?

THE term Education sometimes denotes a process and sometimes a product. In discussing the principles of Education, it is mostly confined to its use to represent the act or process by which a person is Educated. In common language it often applies to the knowledge, power, or skill which a person has gained.

2. If we will duly consider the different views which different persons take of the same subject, we must conclude that men see only those things to which the forms of thought which their own minds furnish are adjusted. When Don Quixote, on his mission of knight-errantry, saw gleaming swords of mighty giants in the swinging arms of a windmill, heard the tread of soldiers in the steady beating of a fuller's beam, and saw an army's camp in a flock of sheep that lay in a field at midnight, his infatuation differed from the common errors of men only in the degree of its absurdity. The sights and the sounds were no mere appearances. The gleaming, like the flashing of a sword, was real. The beating which he heard in the darkness was like the steady tread of veteran soldiers. The white-fleeced sheep dotted the plain like the tents and banners of an army. His error came from the fact that things by which he ought to have corrected the vagaries of his imagination awakened no recognition, and he saw and heard only what he had gone

we take to it: out of nature also.

forth to see and hear. His mind had been filled with stories of daring deeds which others had done in the same field of enterprise, his imagination was inflamed with pictures of wrongs which the weak were suffering, and to him the world presented but two phases,—red-handed wrong and innocent suffering. Every thing had to be interpreted as belonging to the one or the other of these two sides of existence. Men in real life, men at their best, see and hear only what their minds are prepared to see and hear. Mental activities are from within, and they will be in harmony with nature only as the mind is prepared to respond to the appeals of nature in their perfection of order and beauty.

3. A great difference is seen in the same individual if we compare the activities of the child with those of the man. The change through which the mind passes is an evolution, and the process by which this change is brought about, and which we call Education, is a development. That which Don Quixote lacked was not different surroundings but a different development of his own powers. We speak of building up the brain and building up character. But the agent that builds is within the brain and within the character. Brain food and principles of conduct are only the material and form which the agent uses in building. Indeed, it is a doubtful use of the word build to apply it either to the growth of the body or the development of the mind. It is one of the oldest principles of philosophy that Education is not an accumulation of experiences and facts of observation. The mind is not like a honey-comb, with cells formed waiting to be filled. Education, as its etymology implies, when the word is traced to its ultimate Latin stem, is a drawing out, a calling into exercise, of an energy already existing. This will be made more clear by comparison.

a. An atom of matter manifests a form of activity called attraction when another atom acts upon it. The energy of attraction must be thought of as belonging to the atom, and developed from it, for it does not exist in the second atom if not in the first, and if it existed in neither it would not exist at all as an atomic force. Atom

b. There is another form of activity in plants. It is true that there are no changes of matter in the growth of a plant, so far as we know, but such as we may conceive to be produced by the attraction existing in the material elements out of which the plant is produced. We see the attraction of gravitation, and capillary and chemical attraction every-where manifest in a growing tree, and perhaps these are sufficient to account for its growth if we could conceive how they are called into action. An atom requires only the presence of another atom like itself to manifest the activity of attraction, but the earth, out of which a plant grows, requires the presence of something different from itself, or it will not take on the form of root, trunk, flower, and fruit. There must be present plant-life to condition or determine the forms of a plant's activities. Wherever the life-germ is planted, there, and there alone, do the activities of matter take on the forms of living plants. The growing of the plant comes from the development of the power within the seed. Plant.

c. There is a higher activity than that of plants seen in animals. The science of Zoölogy is distinct from Botany, because the laws of the development of animal organisms are different from those seen in the development of plants, and we must conceive of a different principle to condition this different manifestation, for animals as well as plants are made from common dust. 3 Animal.

d. There is a still higher form of activity than that of sense and motion. It is the activity of thought, feeling, and will. It is due to the presence of rational life. Whatever the origin of this life may be, it is subject to laws peculiar to itself, and it is a power not to be accounted for, the same as is gravitation, and we must consider that when it is made to manifest itself it is developed, not created. Education, then, as applied to this power of the mind, is development.

4. The difference between a development of the forms of a force in any thing and the transmission of a force to it may clearly be seen in physics. When one ivory ball strikes against another, the first ball stops and the motion is taken up by the second. The force of the first ball is said to be transmitted to the second. When a hammer is brought down upon an anvil, the force is transmitted to the anvil and transformed into heat. But when the gate in a mill-race is lifted, and the water pours down upon a wheel and sets the machinery of the mill in motion, the force that raises the gate is not transferred to the water, but the gravity which was before in the water and held in a state of inactivity is set free, and manifests itself in the work performed. The explosive force of gunpowder does not manifest itself until the powder is raised to a temperature required to develop it. In the same way we say the powers of the mind are developed when from an inactive state they are brought into activity.

5. The term Education is sometimes restricted to the development of the mental powers; sometimes it is used to include both mental and bodily powers, and sometimes it embraces, in addition to these, a consideration of the fitness of man for his place in creation, and the selection and use of the means required for this purpose. All these ends are legitimate, but the propriety of in-

cluding them all under the term Education has been questioned.

6. If the subject is to be treated as a science, its scope must be limited to things connected together in accordance with laws applying to them in common. The limits of a science are, in one direction, a cause, and in the other direction an effect. If we attempt to connect the development of the body and the development of the mind together as one science, we ought to be able both to trace the specific forms of mental development to specific physical forms, and then to trace the development of these by a common law of causation. But we can not trace the connection of body and mind, except in a general way, and not knowing whether any specific physical forms are required for particular mental development or not, we can not say any thing about the development of these forms. We can only say, in general, that the body should be sound to secure the highest development of the mind. On the other hand, if we connect with the development of mind the use of the powers to be developed, the end of existence must be considered as the effect to be explained, and the mental powers the cause. This would make the science of Education the science of duty or correct conduct. But if we are seeking to explain the developed forms of the mental faculties, we must consider them as an effect, and, as was said in the first chapter, this effect will constitute the limit of the science in this direction, and the purpose of this effect will have nothing to do with the science. *We may fairly limit the science of Education, then, to the causes of the development of the mental powers.*

CHAPTER IV.

REFLECTIVE CONSCIOUSNESS.

DISCUSSIONS designed to show what consciousness is have been numerous, and conclusions diverse. It is not strange that this is so. The thing which is represented by the word has not an existence by itself, and it is manifested in infinitely varied degrees of obscurity and clearness. All knowledge comes into distinct consciousness slowly. A child's first consciousness comes only after many impressions have been made upon the senses; and in the same manner we shall see, if we consider the various grades of animal life, that what may be called types of consciousness change gradually as we rise in the scale from the lowest to the highest. Naturalists have denied consciousness proper to the lower animals.

2. As consciousness develops slowly in the individual, so also it has developed slowly in the race. Even the senses are able to give a greater variety of conscious distinctions as men advance in civilization. There are distinctions of sound and color which apparently were not recognized by the ancients, and which are not recognized by barbarous tribes in any age, but which are now common in civilized communities. Only the more dazzling colors and the shriller sounds excite the attention of savages.

3. In accord with this slow growth of consciousness has been the recognition of the thing itself. It is said

that it had no recognition in classical Greek philosophy, and there is no classical Greek word for it; and the Romans, who gave us the word consciousness, did not distinguish between it and conscience. But, however obscure our notion may be, the fact that this notion has been growing in positiveness and clearness in the past, and the fact of the important place which consciousness occupies in the philosophy of mind, warrant the belief that the conception will finally be classified in a manner more satisfactory than in the past. It will be the effort here to give it a fixed place, and assign to it a clear and consistent office, in order that uncertainty and obscurity may be avoided in its use.

4. Consciousness is sometimes spoken of as the mind knowing, feeling, or willing. This assumes the existence of the mind in two states, the one conscious and the other unconscious. According to the definition, consciousness is the same thing as the mind in a conscious state. This is clear and definite, but no philosophical writer ever uses the term in a manner consistent with this description. This fact is sufficient to show that our common conception of the thing designated is not adequately described by the definition. For evidence, one has only to look anywhere at Sir William Hamilton's use of the term. Instead of using the word to designate the mind in one of the two states spoken of, it seems more natural to use it to designate that which distinguishes between the two states. It can not be separated from mind except in thought, as motion can not be separated from a moving object, but we can think of it separately.

a. In the first place, it should be distinguished from mind. Consciousness is not essential to our conception of mind, for mind may exist as a potential energy without consciousness.

finition. / faculty.

b. In the second place, it should be distinguished from the faculties for the same reason that mind is distinguished from the faculties, for it, like the mind, is common to the exercise of them all. It is a characteristic of the mind when acting, and it is a characteristic of each of the faculties when acting. By this is meant that the mind, when acting, manifests itself in some form, which we call the activity of a faculty, and consciousness is an element in every such activity, and we try to separate it in thought both from the mind and from the faculty.

5. To discover what this characteristic is, let us take any sentence, as, The rod is iron, and analyze the mental activities expressed. The word rod, in the sentence, designates an object, and the word iron, material. The conception of the one comes from an immediate perception, and the conception of the other from memory. Leaving out of account, for the present, the consciousness involved in the formation of these conceptions, let us seek for the element of consciousness involved in the sentence as a whole,—that is, as a unit of mental activity. The word rod designates the object as it exists apart from the mind, and the word iron the material in the same way. But the word *is* represents a separate activity by which we connect together the conceptions of the rod and iron. If asked how we know the affirmation to be true, we should say we are conscious of the fact stated. The perception of the rod and the memory of iron have no connection with each other except in consciousness. We assert identity because of this consciousness.

6. But in the conceptions of the rod and iron there was a consciousness of the existence of the rod and of the memory of the material. The entire office of consciousness in this assertion, then, is to affirm existence of

the rod, and identify it with the conception of iron called up in memory. We may define consciousness, then, as follows:

(1.) *Consciousness is the predication of being and identity in the activity of the mind.* Or,

(2.) *Consciousness is the copulative of thought.* Or,

(3.) *Consciousness is the unifying element in mental growth.*

7. In language, consciousness is represented by the neuter verb or copula. The only explanation we can make of the copula is that we are conscious of the identity of subject and predicate. This use of the neuter verb is still further seen when we consider the use of the modal adverbs *not*, *perhaps*, *probably*, and so forth. These all indicate degrees of certainty in our conscious apprehension of the agreement of subject and predicate.

8. Metaphysicians differ from each other in their views of the relations of mind to matter, some holding to an immediate knowledge of the external world, while others say the mind has immediate knowledge only of its own acts and states. But, whichever of these views is held, consciousness, if it is a characteristic of every activity of the mental faculties, must be equally relied upon to predicate existence and identity of the objects of knowledge.

9. The term reflective is applied to consciousness here to represent it as growing by comparing one thing with another. This is the character of the human consciousness, and to develop this consciousness is the object of education.

Reflective Consciousness.

CHAPTER V.

UNCONSCIOUS BEGINNINGS.

THE sphere of the Science of Education lies between the unconscious conditions of mental activity, on the one hand, and the fixed forms of developed consciousness on the other. It is not for us to inquire here into the origin of the mind, but we need to know what is put into it at the beginning, that we may know what education has to deal with. This limit of the science will be considered under the heads of Native Energy, Heredity, Unconscious Tuition, and Unconscious Physiological Relations.

I. NATIVE ENERGY.

1. In order to account for the development of heat in a piece of burning coal, it is necessary to suppose that the coal, before burning, possesses a certain amount of energy held in equilibrium capable of becoming heat. In the same way, in order to account for the manifestation of thought, feeling, and volition, it is necessary to suppose that the mind is originally endowed with an energy capable of revealing itself in these forms. As the energy held in equilibrium in the piece of coal remains inactive until it is developed into activity by raising it to the proper temperature, so we may conceive of the Native Energy of the mind as latent until stimulated by proper means into forms of activity.

2. The notion attributed to some early philosophers that the mind possesses ideas as an inheritance or by virtue of its constitution must be regarded as satisfactorily disproved by Locke; but the notion which he substituted for it, that the untrained mind is like a piece of blank paper must as certainly be rejected. There are no more ideas in the undeveloped mind than expressions of thought on a piece of white paper; but the ideas that may be developed in the mind are not subject so absolutely to the will of a teacher as the writing on paper is subject to the will of the writer. The teacher should first of all rise to the conception of the mind he seeks to develop as possessing an energy capable of developing only into certain fixed and definite forms of action, and in accordance with fixed laws, and should learn that to attempt to put other things there, or to develop the energy regardless of mental laws is futile. Native Energy exists under certain well-defined Laws.

LAW I.—NATIVE ENERGY IS LIMITED IN AMOUNT.

First Proof.—While we never more than approximate the limit to which energy may be developed in any case, the highest point ever reached by one is not so far above the attainment of others as to justify the belief that the energy is limitless. We do not reach the limit of the possible exhaustion of air in the use of the air-pump, yet the air in a receiver is finite in quantity.

Second Proof.—Mental Energy shows signs of exhaustion by mental or bodily exercise. There is a limit to the exercise of memory, thought, and attention.

Third Proof.—Mental Energy does not develop steadily in proportion to opportunities throughout the period of mental vigor. There is a period of growth, and this is followed by a period for the use of the intellectual powers.

Observation.

It would seem to follow, from this Law, that it is better to postpone the development of a mental faculty than to exhaust the possibilities of development by erroneous education. There is probably a limit of age before which it is of little use to try to develop the set forms of mental action, and another limit after which development is more difficult, but the period between these limits is long enough to allow a considerable choice as to the time when the most important educational work shall be done, and yet secure the development of Native Energy to its practical limits. We need neither despair of a child because he can not go to a Kindergarten at three, nor conclude with Rousseau that the time spent in systematic discipline before twelve is worse than wasted.

Law II.—Native Energy is Limited in the Variety of Forms of which it is Capable.

Proof.—To prove this, we need only point to the fact that the blind and the dumb are limited in the forms of knowledge of which they are capable as compared with others having their five senses. We can easily conceive that a sixth sense would add as great a variety to the forms of knowledge furnished by five as the sense of sight adds to the knowledge acquired by the other four senses.

Law III.—Native Energy Differs in Amount and Variety in Different Persons.

Proof.—If the first two Laws are true, and it is also true that the Creator has been bountiful in making provision for the loss of time and opportunities to a certain degree, as he has been bountiful in supplying seed for the reproduction of vegetation a hundred-fold, we can only account for the great differences we see in the same family, the differences between races living side by side, and the degeneracy of children whose parents have given them better training than they themselves enjoyed, by supposing there are differences in Native Energy.

Observation.

If we are to make the most of a child, it is necessary to confine our attempts at educating him to those things that are within his reach, and direct his energy to that of which he is capable. If we seek to accomplish a given result, as to establish a character of truthfulness, we must adapt our efforts in kind and quantity to a child's natural disposition. So it is of all instruction. Individuals are to be developed, not classes.

Law IV.—The Development of Native Energy Reveals a Relation between Intellectual and Vital Action.

First Proof.—Children, when growing most rapidly and developing the physical powers that require the largest amount of vital energy, find it hardest to do intellectual work.

Second Proof.—The intellect is caused to degenerate by indulgence of the lower nature in intemperance, gluttony, and other physical vices.

Observation.

While this Law is undoubtedly true, and should lead to an economy of vital force for the sake of increased intellectual energy, yet some of the brightest intellects have been occupants of weak bodies. Virgil had a weak constitution, and Cæsar was subject to the worst of constitutional maladies.

LAW V.—NATIVE ENERGY IS DEPENDENT UPON THE PHYSICAL ORGANS FOR DEVELOPMENT AND EXPRESSION.

Proof.—The proof of this Law is seen in the fact that all our knowledge comes primarily through the senses, and we do not think of trying to express our thoughts and feelings in any other way than by some physical action.

OBSERVATION.

To insure the most complete development of the mind, not only the organs of sense, but every organic structure must be cared for and kept in the best condition. Not the senses and the brain alone are involved in thought and action. Wherever there is a thrill of life, in every part of the body to which a nerve of feeling is supplied, there is placed the possibility of a stimulus to mental action that may be the source of good. Take, for instance, the delicate arrangement of nerves that enables one to judge correctly the direction and distance of sounds. To the general on the field of battle this ability is often of the greatest value. It is said that Napoleon's quick ear enabled him to take advantage of many an opportunity which would otherwise have been lost, and thereby to gain an easier victory. Symmetrical vital action is necessary to symmetrical mental development, and the subordination of the whole body to the mind is necessary to the highest achievements.

II. HEREDITY.

This is too subtle and too intimately associated with the unconscious and dimly-seen influences of infancy to be estimated with accuracy, but it must be regarded as a factor of no small importance. Many profound questions are raised with regard to the extent of this principle, but the following well-established Laws are all that need to be discussed here.

Law I.—There is a Resemblance between Children and Parents in the forms of Mental Activity.

First Proof.—The truth of the Law is shown by race-types. In almost every race may be found men of the highest order of intelligence, but each race has peculiarities of development that appear in successive generations. The Spartan is a hero, the Athenian a philosopher, the Roman a sovereign, the Caucasian intellectual, the African emotional.

Second Proof.—It is shown by the progress of races in the development of their characteristics. This development has been along certain lines that show common tendencies in all the members of a race.

Third Proof.—It is shown by the peculiarities prevalent in families. The likeness between parent and child is more likely to be in some peculiarity than in general intellectual power. The records of crime and insanity reveal the hereditary tendency in families beyond all dispute. A few years ago an examination of the statistics concerning one family brought to light the fact that within four generations nearly one hundred of the descendants of one criminal had been incarcerated for crime. In 1884 there was published a report of the death in Pennsylvania of the last of a race of mad people, whose ancestor, four generations back, had been driven insane by a murder committed in her presence. The malady was transmitted in unbroken succession till the race became extinct.

LAW II.—HEREDITY IS SEEN IN GENERAL RATHER THAN IN SPECIFIC CHARACTERISTICS.

Proof.—The son of a criminal has no special tendency to follow the same line of criminal conduct as the parent, though there may be tendencies to develop into crime of some kind. In the same way a character of virtue may be transmitted without determining the specific form in which it will manifest itself.

LAW III.—INHERITED TRAITS ARE MORE PERSISTENT THAN THE INFLUENCE OF EDUCATION.

First Proof.—It is always found to be harder to eradicate a habit that rests upon inherited tendencies than a habit formed without such antecedents.

Second Proof.—The truth of the Law may be seen especially marked in the lower animals. The dog that has learned to swim seldom swims for mere sport. But when the Dipper falls into the water the first time it will immediately begin to dip and dive, and continue this till exhausted or hunted from the stream that has half been the home of its ancestors.

OBSERVATIONS.

(I.) The ways that children get from their associates are often bad enough, but those that come from Heredity are much harder to deal with. When we see conduct that leads us to say, "I do not see where the child got that habit," we may suspect it depends on Heredity, and that it will require the greatest care and effort to eradicate it.

(II.) Inherited tendencies are more likely to find us off our guard than acquired habits. Even after we have schooled ourselves for years, we may be betrayed into a bad habit unconsciously, and if we consider the cause we will be likely to find it an inherited tendency.

(III.) An inherited tendency is often capable of being developed into either good or bad conduct. Whichever way it shows itself it is a strong power. If it manifests itself in a useful form it is to be encouraged; if in an evil way, the evil should be checked by turning the energy, if possible, in the direction of that which is useful. Means are too often employed to eradicate an evil tendency whereby the possibilities of good are destroyed, when a little skill would have developed the good to such an extent as to utilize all the energy and leave none to be expended on evil ways. There are few words more abused in theory and practice than the word thorough. That every thing should be well done when finished is true, but as much of the material used in building passes through stages when it seems rough work, so the energy out of which character is built often displays itself in ugly forms. To crush out this energy is thought to be a thorough method of dealing with the evil, but by so doing much good is destroyed. No doubt Charles I. desired to rule the English people well, and rebellion against constituted authority is a great evil. But, if the king had appreciated the fact that the love of liberty which had been ingrained into the very constitutions of his subjects was not inconsistent with loyalty, he might have turned to good account that spirit which he roused by his radical methods to his own destruction. The Earl of Strafford saw no way of enforcing loyalty except by crushing out the love of liberty, and this he sought to do by means that won for him the title of "Thorough," though it failed to bring any good, either to the people or his prince. Many of the faults of children are manifestations of a strength of character that may become the foundation of great success, if wisely guided. If children are indolent from a love of indolence there is little to hope for; but if they are idle because restrained from the kind of exercise they like, or because no motive is brought before them adapted to rouse their energy, the case is one that calls for ingenuity in seeking to find out their natural inclinations. Regular methods of study and discipline should be adhered to, but they should be broad enough and flexible enough to make the best possible use of the infinitely varied tendencies of different pupils. The teacher should be broad-minded and large-hearted.

(IV.) Education should be directed to secure individuality. The law of the persistence of inherited tendencies implies likeness, and if the teacher adds his effort to develop the mind of every child in the same way, only those forms of power which are common to all will be brought to perfection. This may secure a high development of some particular characteristic, but it will not develop a variety of powers, one of which may be great in one, and another in another. So long as a people is advancing in civilization, there will be strong marks of individuality among the members of any community. A growing civilization develops personality in the very features of a people. There is greater difference in appearance among the members of a civilized community than among savages. The variety of forms of intellectual development is still more marked. The civilized nation is greatly superior to an uncivilized race in diversity of knowledge, occupation, and capability. In an educated community one person can do one thing well, and another another thing. In a savage tribe but few things can be done well at all. The teacher should seek to foster this individuality, and bring into activity the best thing in each one of his pupils.

(V.) The law of inheritance runs through a long time without being always manifest. The right to inherit property does not lapse by time, but the actual possession is often missed by many generations. The same is true of mental characteristics. Plutarch has handed down the story of a Caucasian pair whose child developed Ethiopian features. When the cause was investigated, it was found that one of the mother's ancestors four generations before was an Ethiopian. While the temporary disappearance of inherited characteristics makes the subject of heredity more obscure, it does not diminish the importance of giving the greatest heed to those traits of character that cling more persistently to a child than other traits. This importance has reference both to those traits that should be checked and those which should be fostered as the foundation of the child's greatest possibilities.

III. UNCONSCIOUS TUITION.

The influences that do not rise to the grade of securing conscious activity, and which yet affect the character, are often scarcely to be distinguished from hereditary tendencies. They are as important, perhaps, as Heredity or even directly formal instruction. They include the influence of events and objects of which the mind is not conscious, though in their presence, and the incidental influences that escape consciousness in the case of objects to which particular attention is given. We think of an object for one purpose, but incidentally its influence on us is much wider than our thoughts.

Law I.—Unconscious Tuition lays a Foundation for Conscious Development.

First Proof.—We are able to trace conscious states of the mind back through grades of less and less distinct consciousness to a point where consciousness disappears, although the same stimulus is active as when there is the most complete activity of mind. We must suppose that this stimulus is making unconscious impressions, which, when often enough repeated, develop into consciousness.

Second Proof.—We can not account for the development of the first conscious activity without supposing it a product of combined unconscious impressions.

Observation.

The Unconscious Tuition of children before they are old enough to have many distinct thoughts, added to the influence of Heredity, lays a foundation for most of the character that develops later in life. It has been seen that hereditary tendencies are permanent. We must also suppose unconscious influences to be permanent in their effects in order to make them the foundation of any growth. We sometimes wonder what a child's thoughts are. It probably has no thoughts, but is getting ready to think. The mind is being prepared by unconscious impressions that will determine what its thoughts shall be when it does think, and volumes have been written to show the importance of this period of a child's life. When the teacher receives a pupil, he has, in the main, passed through the period of this tuition, and the teacher must take the character of the tuition into account as a part of the foundation on which he is to build.

Law II.—The Unconscious Tuition of any Period of Youth has its Value and Direction determined by the Character already Formed.

Proof.—A teacher's character and habits exert an unconscious influence on pupils, but this influence is very different on different pupils. A habit of carelessness will make a careless boy more careless still, but a neat and careful boy is not likely to be affected. A bad habit will encourage a boy that has the same bad habit, or a tendency to it, while it will repel a boy with a character of an opposite tendency already established.

Observation.

Our words and actions bear in many directions. We do not know what preparation there may be in the unconscious life of the children of a school-room to stir at suggestions of which we ourselves have taken little thought. Refinement of character and gentility of manner come from a sensitiveness formed by unconscious influences.

IV. UNCONSCIOUS PHYSIOLOGICAL RELATIONS.

We are conscious of the activity of our senses and of the exercise of our wills in muscular action. But the body possesses much power over the mind of which we are not directly conscious.

Law I.—Physical Temperament Exercises an Unconscious Influence in producing Happiness or Misery.

Proof.—Children whose physical organization is so perfect and well-balanced that they enjoy eating, exercise, and other pleasures with uniformity, but never to excess, and who are not oversensitive in any physical organs, will be happy under circumstances that would make other children peevish and fretful. On the other hand, children who are so constituted as to have keen enjoyment of particular pleasures are apt to have corresponding irritability. Mature reflection is unable to bring an unhappy temperament under the control of reason, so as to save its possessor from fits of causeless despondency, while buoyancy of spirits will sustain a Mark Tapley under the most discouraging and distressing circumstances.

Observation.

A settled feeling of despondency is liable to grow out of indulgence in the extremes of happiness and misery, and to avoid this it is desirable to temper the joys and sorrows of childhood. Allowance should also be made for children of an unhappy temperament, and children of a more equable temperament will bear more crowding in their work.

Law II.—Physical Derangement often Insensibly Affects the Mind.

Proof.—Disease, bad air, indigestion, weariness, and the lack of physical exercise have their influence on the mind and spirits long before we are conscious of it. The chilled sleeper is not conscious of his chilliness, and never wakes to throw off his stupor. Bodily infirmities and inconveniences extend even to an influence upon moral conduct, and the importance of taking them into account in the discipline of the family, the school, and prison is very great.

Observation.

The teacher's judgment must be relied upon to detect and remove causes of uneasiness and inattention which act upon the mind in an unconscious manner.

CHAPTER VI.

THE MENTAL FACULTIES.

THE limit of the Science of Education in the direction of effect is the developed forms of reflective consciousness. These forms of consciousness are classified under what are called Mental Faculties.

2. A general classification of the Faculties may be drawn from a simple illustration. A child sees an orange, and this brings up to his mind the recollection of having seen and tasted of oranges before. The sight of the orange, and the recollection of the pleasure of eating oranges previously, excite pleasure anew, and the pleasure leads him to desire this orange and to reach after it. Here are manifested three kinds of mental activities. The sight of the orange and the recollection are kinds of knowledge; the pleasure is a feeling, and the desire and effort to obtain the orange are exercises of volition. In accordance with the facts of this illustration, Psychologists generally agree in making three classes of Mental Faculties, which they call Cognition, Feeling, and Will.

a. The activities which end in knowledge of any kind are called Cognitions.

b. The activities which end in a consciousness of pleasure or pain are called Feelings.

c. The activities which end in desire, resolution, or endeavor are called Volitions.

3. Cognitions.—The Cognitions are of various classes, and their arrangement under different intellectual faculties may be seen from the following illustration.

a. We know that all points in the circumference of a circle are equally distant from the center. The idea of the circle spoken of is not of a particular circle but any circle that may be supposed. The idea of the circumference is not of a material line, and the idea of the center is not of a material point. These ideas are all distinct from the ideas of circles, curves, and points that have been actually seen. In order to form such ideas, the mind must have a power adapted to these activities. This power is called the Faculty of Reason.

b. In order to know that the distances are equal, we must be able to compare one distance with another, and the ideas of different circles with each other, and draw conclusions from our comparisons. The power by which such activities are caused is called the Elaborative Faculty, the Faculty of Comparison or Reasoning.

c. But not having material circles to handle, the mind must have the power to hold before itself the ideas of circles, circumferences, and so forth, and place them side by side, or one upon another, with as much distinctness as the consciousness of the forms of material things would possess. This power is called the Faculty of Imagination. By it we may form an idea or image that represents an object of experience, and then the Faculty is called Reproductive Imagination; or we may put images together in any order we please, when we call it Constructive Imagination.

d. But the mind would not be able to produce these images of circles and circumferences unless ideas had been produced in the mind in some other way which these images resemble. In order to form the images, the ideas previously in the mind must be more or less clearly recalled. The power by which ideas are recalled and associated with the past is called the Reproductive

Faculty. It differs from the Reproductive Imagination in associating the present with the past, while the Imagination is confined to the formation of vivid outlines or pictures.

e. In order to recall ideas, they must be held in the mind as some form of mental modification, though out of consciousness, and this is secured by the Faculty of Retention.

f. Finally, since the mind possesses no ideas in the beginning, it must acquire them before there can be any to retain. The power by which knowledge is originally obtained is called the Acquisitive Faculty. This Faculty involves the activity of the mind through the senses, called Perception, and the knowledge of one's own mental states, or Self-Consciousness. The Cognitive Faculties, named in the order of their development, are as follows:

1. Acquisitive $\begin{cases} \text{1. Perception.} \\ \text{2. Self-Consciousness.} \end{cases}$
2. Retentive, or Memory.
3. Reproductive, or Recollection.
4. Representative, or Imagination.
5. Elaborative, or Comparison.
6. Regulative, or Reason.

Of these forms of knowledge, Acquisition must be first in conscious activity, for the activity of the other Faculties presupposes this.

4. Feelings.—The Feelings of pleasure and pain are of two kinds: those that attend physical activity, and those that attend intellectual activity. Of these activities, two things are to be observed in this place; first, that it is not necessary that the sense of pleasure or pain should be strong enough to draw the attention upon itself as pleasurable or painful, to justify us in calling the sensa-

tion a Feeling. Mental activity has an element of conscious excitement that is not knowledge, and this element may be a decided pleasure or a decided pain, it may combine the two, or it may be so weak as to possess no decided character of either in consciousness. In the second place, conscious Feelings must follow cognition. The intellectual Feelings, being such as depend upon the action of the faculties of knowing, are of necessity subsequent to the beginning of this activity. But the conscious physical Feelings are as dependent upon intellectual Feelings. We must at least be conscious of self in order to be conscious of any pleasure or pain, and self-consciousness is a kind of knowledge. The pains that we can not locate in sickness and nervous irritability do not manifest themselves in consciousness unless there is first a consciousness of self. The pleasures of taste and smell, and of the other senses, come into consciousness as sensations only as we are conscious of an action of these senses that gives us knowledge. Whatever modification there may be of the senses previous to conscious perception, is below consciousness, and does not need consideration here. Up to this point, then, the beginning of all conscious activity is in the acquisitive faculty.

5. VOLITIONS.—*a.* It has been said above that the Volitions end either in the consciousness of desire, resolution, or endeavor. That activities of the will are connected together, and follow each other in the order in which they are here named, is evident from the following illustration: an invalid, seeing the sun shine in through the window of his room, desires to enjoy the fresh morning air. This desire is cherished until he resolves to make the effort to go out where the enjoyment may be had. The resolution is followed by the effort and the end is gained.

b. That a Volition may end in desire, in resolution, or endeavor, is clear from the following illustration: the farmer desires rain or the sailor a fair wind. Neither can do any thing to obtain the object desired; and, although they would do much to obtain the end if they could, their wills must stop with desire. But each determines to take advantage of the event desired if it should happen,—the farmer to plant his field if it should rain, and the sailor to put to sea if the wind should be fair. Each may be compelled to stop with the resolution. The rain comes and the farmer puts in his seed, the wind blows fair and the sailor unfurls his sails, and the Volition has reached its culmination.

c. That desire is separate from feeling and follows it, is manifest from the following considerations. The feelings culminate as feelings in a sense of pleasure or pain, while the Volition culminates in active endeavor. The end of desire is the attainment of the purposes of the Will, not the pleasure of a contemplation of it. From this consideration, desire must be classified as the beginning of a Volition. But one can not desire any thing that is not represented to the mind in such a way that the representation excites a feeling of pleasure to be prolonged or pain to be avoided. Hence, feeling must precede Volitions.

6. As the feelings follow cognitions, so the volitions are seen to follow the feelings. These different mental activities depend one upon another, and can follow each other only in the order named; and as the cognitions are first, and the acquisitive faculty gives the first cognitions, it follows that the first conscious activity must be one of perception or self-consciousness.

CHAPTER VII.

GENERAL LAW OF MENTAL DEVELOPMENT.

AMONG the things that lay doubtful claims to the rank of a science is Education. The doubt is not raised with regard to the character of the thing itself, but with regard to our understanding and treatment of it. As before stated, a science is formulated in laws bound together in one system by some general organic law. But our understanding of the laws of mental development is so wanting in unity and consistency, that however certain we may be of many of the laws of mental growth, we have not related these laws together in an organic whole. The first step to be taken is the development of a General Law.

2. Before we can formulate a law we must find a principle, and before we can formulate a General Law of mental development we must find a principle that runs through all the changes by which development is secured. If we can find such a principle, we may be able to trace a General Law, and arrange the facts and known laws of education under it in some systematic or scientific manner.

3. Education has been defined as the process of developing the forms of reflective consciousness, and consciousness has been defined as the predication of being and identity. The growth of consciousness, then, is growth in the predication of these two elements. The predication of identity is impossible without the predication of

being, but the predication of being could never constitute growth. Were it possible for us to be conscious of any number of existences, there could be no development of consciousness without an act binding these states of consciousness together. Successive predications of the same thing, existence, would pass through the mind as waters flow down a river, and leave no product of growth. It is only when two different states of consciousness are compared with each other, and a likeness is found by which they are linked together in a kind of larger unity of thought that the mind grows. The identification implies a consciousness of the existence of things that are different from each other, but the essential principle in the process of development is the identification, the unification, or the synthesis of the different. This, then, is the general principle in mental development. By what law does the principle manifest itself?

4. The great work of Kant began in an attempt to show how synthesis of *a priori* concepts is possible. He took it for granted that if we have seen any thing as a whole, and the parts are presented to us, it is possible to put the parts together again and make the whole. The mind may build up a unit if it has first an idea of the unit; hence it may perform a synthesis of all objects of experience. But how is it possible, it was asked, to build up the idea of a circle as a surface with necessary characteristics when we have never seen a true circle? His answer to the question was that while there is no innate idea of the circle in the mind, yet there is a native capacity of the mind, depending on its constitution, in consequence of which the observation of that which resembles a circle may develop the idea of the perfect figure. But granting that this supposition of a native fitness in the constitution of the mind is a sufficient expla-

nation of the possibility of building up such notions, there is still another question back of it. What explanation can be made of the fact that the mind does build up such notions? It is possible, but what power makes the possible actual? This question should be asked, not only of *a priori* synthesis, but of all synthesis. Why does the mind connect any two sensations together? Why does it take a single step in the process of development? Objects can not of themselves give us the consciousness of likeness to each other. At best they can only give a consciousness of being, and of being what they are individually. By what power does the mind pass beyond this to the consciousness of identity, by which it is caused to grow? It is evident that a correct answer to this question is the key to the science of mental development.

5. If the eye rests upon a chair, we are able to distinguish color, form, and so forth through the sense of sight, and the perception of such qualities is the end of what the organ of vision can do for us. But we do not stop with the contemplation of these separate qualities. Without any further external stimulus, the mind goes on to identify the color and form with other colors and forms which we have seen, to associate these qualities together as belonging to one object, and to identify this object with other objects we have seen; and we call such an object a chair. The idea thus gained remains a permanent form of thought. All this identification the mind makes of its own accord. Vision only stimulates by the presentation of differences. The mind is awakened by these and brought into a state of unrest until it unifies them, when it is satisfied, and rests in the unity.

6. In a similar manner, different representations of a circle set the mind to work to discover what is the true idea with which all circles may be identified. When the

idea of the true circle is developed, the mind rests satisfied with this, and has no inclination to push its inquiry further. The attempt to unify circular figures, like the effort to identify the chair, is a spontaneous act of the mind, of which we can give no other account than to say it is the natural tendency of mental energy, when stimulated to action by differences, to take this direction. The discriminations are excited by objects, but the unification is spontaneous in the mind. From such facts we infer the following

General Law.—When Latent Mental Energy is Stimulated to Activity by the Influence of Differences in Objects, it is the Natural Tendency of this Energy to Unify the Differences, and for the Unities to become Fixed Forms of the Mind, and the Unification Restores the Equilibrium of the Energy Excited.

7. If the mind in unifying loses consciousness of differences, and retains only the one point of identity, no growth is made. For instance, if we pass by many men on the street, and we do not distinguish them one from another, but only think of each one as a man, we gain no distinct knowledge beyond what would have been imparted by seeing the same person many times. But if the mind holds its discriminations clear in consciousness while it unifies, it develops the consciousness of variety in unity, and adds to its power. Unification must contain conscious discriminations to be development.

8. The unities of thought which we seek to develop are always higher than conscious experience. In our conceptions of an object perceived by the senses, we bind the qualities of matter together by a power in the mind itself. In comparing objects with one another, and classifying

them we seek to develop a notion more comprehensive than that of the individual objects themselves. When we seek to understand an object or event, we develop notions of cause, form, or purpose from the understanding. The mind adds something from its own awakened power to the products of sensation.

9. We have seen before that education is an evolution; we are now prepared to see somewhat more distinctly the character of this evolution. While the process is not, on the one hand, like building with timbers or blocks of stone prepared to hand, neither is it, on the other hand, an unveiling of truths that lie hidden in the mind. We do not lay a foundation of truth in the understanding that rises into a clear atmosphere on which we may stand and gaze at higher truth with unobstructed vision, and thus build and climb; nor is truth brought down to a level with the understanding by unfolding it to its simplest elements. The native energy of the mind is aroused to action, and there begins a struggle to rise to the understanding of the new and the unknown by assimilating or identifying it with the old and the known. There must be this struggle of the power within, or there will be no development. We climb the ladder on which we rise by reaching to the rounds above us.

PART II.

SPECIAL LAWS OF MENTAL DEVELOPMENT.

CHAPTER I.

LAWS OF PHYSIOLOGICAL RELATIONS.

WE see from the General Law of mental growth that mental activity is two-fold. First, new forms of activity are excited through the senses; secondly, these are unified by the mind in consequence of its own constitutional tendency to unification. Physiologists find a corresponding two-fold growth in the nervous system. This system, in outline, consists of nerve cells and nerve filaments. A nerve filament may connect an organ of sensation to a nerve cell, one nerve cell to another, or a nerve cell to a muscular fiber. By comparing nerve systems in different stages of development, it has been found that as mental growth progresses, the cells increase in number and develop in strength of walls; and the filaments are multiplied, connecting a larger number of cells into close relationship, and affording shorter lines of communication between different parts of the organism. The most important collection of nerve cells is the brain, and the most important of the filaments are those that cover the organs of sensation and lead to the brain.

2. The correspondence between the development of the mind and the nervous system leads us to infer some relation of dependence between them, but it does not destroy their separate unity. The Science of Physiology and the Science of Mind remain distinct from each other because the chain of cause and effect in either, however similar to that in the other, is distinct from it. The

activity of one may be a condition of the activity of the other, but even if we could have a conception of the two, such that we might think a transference of energy possible, there would still remain a separate system of laws for each.

3. The arrangement of cells and filaments in the nervous system allows of three distinct courses of nervous activity. First, nervous energy may pass by the shortest way from a nerve of sensation or from a nerve cell to the muscles; secondly, it may pass from the organs of sensation to the nerve cells, and there stop; or, thirdly, it may have its beginning and end in the nerve cells.

4. There is a form of nerve activity that produces muscular action without consciousness. This is seen in the action of the heart and lungs and other movements of the body that we can not trace by direct consciousness. The energy producing these movements passes directly from the exciting cause to the muscles without arousing the general activity of the nervous system so as to produce consciousness. If consciousness is produced, it is not the cause of the muscular activity, for, as in the case of an injury to the eye, it is found that the muscular activity, like the closing of the lid, precedes the consciousness. Physiologists call this reflex action. Such activities as walking, habitual and skillful exercise, and all those actions to which we have become so accustomed that we perform them almost without consciousness, seem to be similar in nature, although they originate in an exercise of the will. If we were to suppose that the degree of consciousness depends upon the extent to which the activity of the nervous system is involved, and that habitual action produces shorter and shorter lines of nervous communication, the low degree of consciousness would be explained.

5. Nervous energy tends to disseminate itself throughout the system, and without arousing conscious discriminations produces a general feeling of happiness or unrest.

6. In reflex action all consciousness is wanting; in the general diffusion of nervous energy, discrimination is wanting. But there are localized centers of nervous activity where the ends of nerve filaments are multiplied and spread over a limited surface, through which the mind is excited to discriminating conscious activity. These centers are the organs of sense. We classify them physiologically, and arrange them in the order of their importance as sources of knowledge. This order is also the order of their location, and may be the order of their development in the animal kingdom. We begin with the lowest, and name them *touch*, *taste*, *smell*, *hearing*, *sight*. The sense of touch is spread more or less over the entire surface of the body, but as a discriminating sense it is mainly located at the ends of the fingers.

7. There are some well-established Laws setting forth the relations between the physiological organism and mental development which deserve careful attention.

LAW I.—ALL DISTINCT FORMS OF CONSCIOUS ACTIVITY ARE TO BE TRACED TO THE SENSES FOR THEIR FIRST IMPULSE.

First Proof.—The first distinct manifestation of consciousness in a child is given in response to the influence of some object, as a lighted candle, upon the senses.

Second Proof.—In the process of abstract thinking, we are obliged continually to bring concrete illustrations taken from the perceptions of our senses to the aid of reason, and we have no conceptions that can not be traced in more or less perfect forms to experience.

Third Proof.—The terms we use in speaking even of the most abstract conceptions, in their primary use, represent impressions of the senses.

Fourth Proof.—We may see how abstract ideas have grown from the very process which we call abstraction. We first consider the concrete, which is complex in thought, and then withdraw the attention from one part or quality and another until there is left only the conception which we wish to consider. The abstract conception is the final result of the process,—not a conception previously formed, which we determine to hold apart from every thing else.

Fifth Proof.—To develop abstract notions in children, we must begin with the concrete. A child can not attain to the abstract conception of number till it has first learned to count things.

Observations.

The inferences from this law are manifold:

(I.) Each of the senses should be developed to make discriminations as exact as possible. The extent and accuracy of practical knowledge, and the reliability of memory, imagination, and reasoning, depend upon the extent and exactness with which we are accustomed to use the senses. Merchants must be able to judge by the sense of feeling of the grades of flour, cloth, leather, and other goods in which they deal. The senses of taste and smell are generally so dull that the ordinary grocer must depend upon a specialist to determine the quality of tea and other articles that please the taste or smell, but the fact that specialists exist is evidence of the cultivation that is possible. The ear and eye are continually exercised, and experience corrects many of their errors, but grave results often follow from a want of habitual exactness in their use. The unnecessary exposure in battle that cost the great Gustavus Adolphus his life, is believed to have been the consequence of his misjudging the distance of the enemy, whom he saw but dimly with an imperfect eye through the dust and smoke. If Grouchy had been favored with the same quick ear as Napoleon at the beginning of the battle of Waterloo, he might have been assured of the fateful struggle going on within his hearing in time to render his chief some assistance, and possibly change the current of destiny for empires.

(II.) Facts, concrete illustrations, examples, and modes of doing things appeal to the senses; principles, abstract conceptions, precepts, and the reasons why follow as more purely intellectual activities. The activity of the mind in gaining the former class of ideas is discriminating; the activity of the latter class is one of unification. In every line of thought, the mind should be so furnished with the ideas that come immediately from the senses that memory and imagination may use these stores of knowledge easily before we attempt to develop ideas that can be obtained only by being drawn from them. In most instances, the common experiences of life have furnished the mind with a basis for the higher development, but we should make sure of it that such is the case, for if this first step of mental growth has not been reached, any effort at advanced development will be absolutely unavailing. The mind must possess:

(1.) *Facts before principles and abstractions.*

(2.) *Examples before precepts.*

(3.) *Methods before reasons.*

But the mind may possess the knowledge of facts, and so forth, and still not develop the higher truths from them. To assure this action, illustrations should be given and required after the statement of principles. If common experience can be relied upon to supply the facts for reasoning, then only the illustrations that follow the statement and show the development of the higher truth are required.

In teaching a child to write numbers for addition, he should be taught how to write them before the reason is given. Much practice will be required before he will be able to gain a clear conception of the reason. In defining or explaining a new term, the thing represented should be brought before the mind through the senses if possible; and if this be not possible, then it should be made as clear as may be by comparison before an exact definition is attempted. The definition should be given as soon as exact and definite ideas will accompany it, and its elaboration may follow. In illustrating and defining grammatical terms, application should first be made to those uses that refer to the action of the senses. In explaining words in common use, a definition may first be given and then illustrations.

(III.) The senses should be developed in connection with language. If language goes back to the senses for its original force, it follows that a word can have no meaning to one who has never associated it with the product of sense activity. It could probably be said truthfully that the most universal and serious mistake made by all classes of instructors, whether teachers, preachers, orators, or writers, is that they choose language not adapted to those they try to instruct. This mistake is due to the fact that the language used is such as the speaker has found to be expressive of his thoughts after long study of the subject, while those who hear have not been trained to the familiar application of the words to the same ideas. The teacher should develop the senses in connection with language in such a manner and to such an extent that pupils may readily see the exact thought expressed by the language they are likely to hear and read. The popular classics of any language, like Pilgrim's Progress, The Vicar of Wakefield, and Gray's Elegy, not only express thoughts that are easily appreciated, but they express them in words that appeal to all.

(IV.) Habits of exact observation should be cultivated early in life, and maintained persistently. Gazing around at every thing and listening to every sound are not meant by this, but a careful attention to details, plans, and purposes. Curiosity, or the desire to see the new, the strange, the different, leads to the first step of discrimination. The mind should be directed to ask further the use of what it perceives, and to learn its relative value by the exercise of a higher unifying power. It should be taught to ask what can be done with that of which it has gained a discriminating knowledge, and thus be led to look for things which stand in important relations to other things. All the lights of a city may be equally attractive to the passengers in a railway car as it passes along the streets, but the engineer values only those he has worked into a system of significant signs. The power of observation is developed when one has learned what to observe.

LAW II.—MENTAL ACTIVITY BECOMES MORE DIFFICULT AS IT DEPARTS FROM THE ACTIVITY OF THE SENSES.

First Proof.—We are conscious of less effort in discriminating by the eye and ear than in the exercise of memory, less effort in representing by imagination what we have seen than what we have been told about, less effort in recalling what we have learned than in reasoning upon it, and less effort in reasoning upon concrete facts than upon abstract truths.

Second Proof.—The senses will give accurate information when there is too little mental energy to think consecutively, as when one is falling asleep or is exhausted by mental exertion. In dreams the imagination mainly is exercised; the reasoning power is scarcely called into activity, even in a half conscious condition of the mind.

LAW III.—THE FURTHER MENTAL ACTIVITY DEPARTS FROM THE ACTIVITY OF THE SENSES THE HIGHER AND MORE COMPREHENSIVE IS THE UNIFICATION.

First Proof.—When we see numerous objects, as the stars in the sky, we at first see them only as contained in a certain space, one having one appearance, and another another. If we try to fix them in memory we must compare them together, and mark their relative positions and their likenesses and differences. If we reason upon them, we unify our conception of them under all the laws of causation which we can apply to them. The perception involves little more than the most primitive notions of space and color. The memory involves a more exact comparison of the objects perceived. The reason unifies them under principles that are universal, and associates them with all other possible objects of perception.

Second Proof.—If we attempt to set forth the knowledge necessarily involved in different mental acts, we find more involved the further we get from the senses. We might comprehensively describe what we see in the heavens on a clear night by saying we see a host of stars, from three to five thousand, scattered over the sky. If particular stars are to be described so as to call them up in memory, their size and distance from each other must be measured by the eye, their brilliancy must be determined with comparative accuracy, their color must be distinguished, and comparisons of every possible kind must be made to satisfy the memory of their identity. If we attempt to tell what we have learned about the stars to satisfy the demands of reason, our story would fill a volume.

Third Proof.—The terms we use in speaking of the abstract are more indefinite because they comprehend a greater variety of possible conceptions than terms representing the concrete objects of perception.

Observations on the Two Preceding Laws.

(I.) From Laws II and III we see that the force of truth presented in terms too far removed from the senses is lost on the untrained on account of the difficulty of comprehending it, while truth presented to a trained mind must condense or unify a greater variety of experiences to maintain interest and keep the attention. Of the two dangers, the danger of too great abstraction is the greater, because the single example will suggest a whole class of objects with their differences to the trained mind, and it is significant to the untrained. It is simple enough for the untrained to understand; it is suggestive enough to hold the attention of the trained thinker. Under the conditions of these laws the teacher must acquire skill both in adapting himself to the capacities of the dullest and least advanced pupils, and in making sufficient progress for the quickest and most advanced.

(II.) From these Laws we can see how an audience becomes wearied while listening to abstract reasoning, and is required to put forth voluntary energy to follow the thought, although the mind is not exhausted, and will brighten up and think without effort at the introduction of an illustration, even though it does not mean much. The same is true of a class. It should be the aim of a teacher both to maintain activity and make progress.

(III.) We see from these Laws that the difference in capacity between individuals is not so much in their ability to understand any one thing as to grasp and unify properly a large number of things. Every truth may be so simplified that the dullest may see it, but it requires a longer time for some to learn to pass from the simple elements to a comprehensive view of the whole than others. This may be seen in taking up a new subject with a class. The class must all begin with the elements of a subject, and it will be difficult for a few days to tell which members are likely to succeed best. All will learn a few lessons, if diligent, about equally well. But in a week's time a unification of the truths learned will be required for progress, and then the pupils begin to show their difference of natural endowment. Slower progress and more frequent reviews are necessary for the duller ones. It may be a useful hint to some to suggest that classes be so arranged that they may often be separated, the poorer members being required to review the work a second or third time, while the better ones advance. Where several grades are in the same room it is not difficult so to break up the classes that reviews may be required of any one pupil in such studies only as he is poorest in.

(IV.) A person of ordinary capacity may become by habit extremely skillful in some one line of mental operations. Men of great celebrity because of high attainments in some particular sphere have often proved very ordinary when placed in other relations in life. We need not be discouraged because we find so many departments of knowledge in which one and another greatly surpass us.

It is said that twenty years after he had gained a world-wide fame for his explorations in Archæology, the great investigator of Greek antiquities of our day did not remember to have even heard the name of one of his most famous countrymen and contemporaries, who was engaged in a different line of studies. Cæsar should not have wept at forty-five because Alexander had conquered the world and died at thirty-three. Skill in special lines generally depends more on training and habit than a difference in native endowments. While all the powers of the mind should be trained, few can become skillful in many things. Every one should become skillful in something. This is what is meant by learning a trade or a profession. Ability to combine and achieve results quickly and easily belongs even to the practice of the mechanical arts. It is as though the nervous and mental energy were trained to take the shortest lines of communication between the beginning of thought and the end of action, and to save time and force.

(V.) Characteristic differences are shown early in childhood by this power of combination. Some children will associate things together easily in memory. The gift of language depends upon the power to unify a thought both in idea and in form of expression. Few are ever able to hold in one distinct conscious unity all the variety of suggestion expressed in one of the periods of Daniel Webster or Demosthenes; still fewer have the power to originate their like. Taking such a period as a whole we only associate the leading heads of thought. Some children put things together in the form of pictures of the imagination, some combine musical sounds in a wonderful manner, some develop early the higher powers of reason. Mozart would strike chords on a musical instrument with delight before he was three years old, would compose melodies with perfect harmonies before he was five, and at six, without practice or training, he played the organ in a convent with such wonderful skill as to draw the monks from their dining to listen. While yet a boy, by himself and without instruction, Pascal drew geometrical figures, and demonstrated the principles of Geometry up to the thirty-second proposition of Euclid. Oddities of combination should generally be avoided. The power to see unnatural resemblances diverts from the truth. A habit of punning and the exercise of what is called a sense of the ridiculous may be indulged for recreation, and they are certainly effective in this regard, but they may put obstructions in the way of correct and useful combinations.

(VI.) For the attainment of success in carrying on the world's affairs, unification should pass as rapidly as possible from perception to complete and final combination. The mind of the successful business man does not go consciously through all the steps that lead to the acquisition of wealth, nor can he generally name them. By a process not distinctly perceived, he sees money in every thing around him, and the way in which his touch turns every thing to gold is as much of a mystery as was the power of Midas. But accurate combinations of elements must be made in the mind on a money basis of unification unless success is purely accidental. A skillful fruit-buyer will go into an orchard and give a very close estimate of the value of a crop of apples at a glance. If he is pressed for the basis of his judgment, he will point to the number of barren trees and to those comparatively bare, and then he will draw down a limb and point to the shriveled, defective, and knotty apples, and you will see that your casual glance meant one thing and his quite another. Without being conscious of the distinct processes, he had been assorting out first, the valueless trees, and then the worthless fruit, and combining only the good fruit into one sum for an estimate of value. The successful general must be able to direct his forces in the field. However skillfully a campaign may be planned, accidents will occur to give the advantage to a vigilant enemy, and involve defeat in almost any engagement unless there is skill to meet emergencies. The genius of Napoleon and of General Grant was not greater than that of other men in planning campaigns, but they were superior to others in this, that they may almost be said never to have made a mistake in the presence of the enemy. When Cæsar reported his campaign in Asia in the words "I came, I saw, I conquered," he told the whole story of the conquest as the important heads of his movements stood out clearly in his consciousness. From sight of the situation to victory was but a single step, as it were, to him.

(VII.) To pass from the perception of the senses to final conclusions requires definite steps of the understanding, and it is to secure these in logical order that drill is necessary. This gives skill and celerity. But it will be seen from the last consideration that intermediate steps should be abbreviated as much and as fast as possible, and the end connected as closely as possible with the beginning. Drill is the warp and woof of training, but skill and not mere repetition is essential to a skillfully trained intellect.

LAW IV.—THE VIGOR OF MENTAL ACTIVITY IS SUSTAINED IN PROPORTION TO THE DIVERSITY OF FORMS ASSUMED.

First Proof.—When the mind has become exhausted in the study of one subject, it may take up a new one with fresh interest. When we become wearied with attempts to understand a problem from one point of view, we will start on another line of examination with fresh vigor.

Second Proof.—The greater the change in the line of thought the greater the relief. When we become wearied with the higher intellectual activities, we are rested by recreations that employ the emotions, and we return invigorated to our intellectual task.

Third Proof.—Up to the point where vital force grows sensibly weaker, change of activity is better than entire rest. This may be partly explained on the ground that the blood is thus kept in more perfect circulation, and the nerves find a supply of needed nourishment ready for their use. On waking from sleep, it requires time to arouse mental activity. The mind may be clear and susceptible, but it does not work out plans requiring a great variety of resources until continued activity has given it a kind of impetus. Great plans, whether of battles, of literary work, or of business enterprise, are often the ripened products of study prolonged into the night. The battle of Austerlitz was thus planned, and so clearly did Napoleon see the details of the day on the night preceding the engagement, that he felt sure of the result, and composed himself in almost perfect sleep. Thus Webster marshalled his stray thoughts into line the night before his great contest with Hayne. If the vital action be low, but the vital energy not exhausted, brisk physical exercise often restores vigor to the standard required for the best thinking most speedily.

Observations.

(I.) All the senses should be so developed that the greatest variety of perceptions may be brought into consciousness. This is required to secure variety of mental activity.

(II.) The faculties of the mind should all be cultivated in due proportion, that the greatest variety of thought may be easily reached.

(III.) Variety of reading and observation should be persistently maintained, that mental activity may be the more fruitful.

LAW V.—MENTAL ACTIVITY IS EXHAUSTING IN PROPORTION AS IT INVOLVES NEW FORMS; I. E., NEW CONCEPTIONS, NEW REASONING, AND SO FORTH.

First Proof.—In traveling, if we try to observe all the objects we pass, we become more wearied than if we give our attention to a few objects. As variety maintains activity most easily, and the new intensifies the activity on account of its being new, the exhaustion is the more complete.

Second Proof.—In reading a book or listening to a speaker, if we are taken rapidly over new lines of thought we soon become too wearied to follow the argument closely, while we can follow lines of thought familiar to us without exhaustion a much longer time.

LAW VI.—MENTAL ACTIVITY AND VITAL ACTIVITY EXHAUST EACH OTHER.

First Proof.—When the physical powers are exhausted by labor the mind does not act easily.

Second Proof.—After a day of hard study the body does not recuperate easily.

Third Proof.—In cases of sickness, the mind must rest or the body will not quickly recover its vigor. Anxiety and brooding over difficulties stand in the way of recovery from disease.

Fourth Proof.—The troubles of life seem harder to bear, and tasks harder to achieve, if the physical powers are exhausted.

Observations on Laws V and VI.

(I.) The relation between vital and mental energy is not conceived as the relation between an efficient cause and an effect, but as a condition and consequent. The relation can not be stated more definitely than this with any assurance. We might conceive of the mind as an active energy, and the physical organs as instruments, in which case the efficiency of the mind would depend upon the condition of the instrument used; but such a relation should not be positively affirmed.

(II.) The motto for the developed thinker, "Not many things, but much," should be modified or reversed for childhood. Then vitality is greatest, and this is especially the time for new formations of thought. A child can not carry one line of thought far, but when he is tired of one thing he has vitality still left for something else.

(III.) Vitality is stronger than the power of consecutive thought in most persons engaged in the manual occupations of life; hence several arguments, though not so demonstrative, will generally have more weight with them than a single proof more elaborately developed and applied.

(IV.) If we would develop the largest intellectual power, we must give the mind time to grow when the body is comparatively rested.

(V.) If children do hard mental work in school, their vitality out of school will be less. When they show an exuberance of vitality on going out of the school-room, it may be inferred there has been little real work inside. It is noticed that when children are sent home from a properly conducted Kindergarten there is no disposition to show that overflow of spirits which a healthy child is so apt to display on leaving what is to him the confinement of an ordinary school-room.

(VI.) In case hard intellectual work is to be required, only so much vitality should be given to physical exercise as is needed to secure healthy action of the vital organs. In case of feebleness of the body, the mind should rest and give all the vitality to the body. Derangement of some vital organ is to be distinguished from feebleness. Sometimes mental exercise, especially of an emotional character, is the best stimulus that can be given to disordered physical energy.

(VII.) Problems which we can not face at night with exhausted physical powers may often be easily met and overcome after sleep and rest.

CHAPTER II.

LAWS OF REFLECTIVE CONSCIOUSNESS.

IF we compare the third definition of p. 43.
consciousness with the General Law for mental development, we shall see how important a place in the science of education is occupied by consciousness. It will be seen, as we proceed, that it is important at every step. It is not only important in organizing new notions and new thought, but it is equally important in considering distinctness of thought. A large part of the attention of the teacher must be given to developing the indistinct, and this is only done by developing consciousness. It is for this reason that so much space was given to the consideration of the character of this element in thought, and that an effort was made to carry the analysis of mental operations further in this direction than is usual in search of a definite conception of it.

We may now consider some of the laws under which consciousness is developed.

LAW I.—CONSCIOUSNESS BEGINS WITH THE ACTIVITY OF THE SENSES.

First Proof.—By observation it is found that the first manifestation of reflective consciousness in infancy is in connection with impressions upon the senses.

Second Proof.—The earliest notions of childhood are of objects of sense.

Third Proof.—The most intellectual conceptions are developed by abstraction from the conception of objects of sense-perception.

Fourth Proof.—What are called *a priori* conceptions are developed through perception.

Observations.

(I.) A foundation for all the forms of mental growth must be laid in sense-activity. Consciousness can not build unless it finds material in the products of sense-activity, and the character of the mind will depend upon what consciousness finds to build with. The fullness of conscious life depends upon the variety and character of the experience of the senses, as well as upon the tendency of consciousness to organize from these the higher forms of intellectual being.

(II.) There is strong evidence to favor the conclusion that continued sense-activity is essential to continued consciousness. The eyes are closed, the light shut out, and quiet sought when a person desires to sleep. Anæsthetics quiet the nerves of sensation so that light will not arouse the sight, sound the ear, nor injury the touch, so long as unconsciousness lasts. It is said that a German boy who had lost the sense of touch, and the use of one eye and one ear by disease, could be put to sleep immediately by closing the sensitive eye and stopping the sensitive ear. But the ability to form conceptions that have been acquired through the eye and ear continues when these senses are lost.

(III.) Every experience will be built into the life and character somehow. Consciousness will make some use of all the material the senses furnish. Unmixed good and unmixed evil are very uncommon, so that there are but few things which we say should never be done, and few that we may always allow. But this does not make it a matter of indifference what is forbidden and what is allowed. On the contrary, the greatest care should be taken to determine what is beneficial and what injurious, and use the one and refuse the other. Some boys associate the conversation and the manners of low company with a character which they despise, and they avoid them in every way possible. There is little need of guarding them against these vices. The imaginations of other boys run riot in scenes of vice, and when once the mind has been tainted through such experiences it is almost impossible to build up noble thoughts. Every thing has something in it that a depraved consciousness may turn to evil account.

The reading of bad books, together with observation of the conduct of vicious and criminal associates that have an attraction for boys is, perhaps, the cause of more wickedness and lower vices than any other one thing unless we must except intemperance.

(IV.) Not only can control be exercised in regard to what experiences shall be had, but the use of them may also be directed through the attention. The character of a lie, of passion, of hatred, of selfishness may be so pointed out as to cause an aversion to them, and great patience should be exercised in the endeavor to do this. We should especially point out the wrong motives that actuate the selfish and the unworthy character of unjust, oppressive, and criminal men who sometimes appear in the light of attractive heroes.

(V.) The structure of character is largely determined in early childhood. Some have estimated that character is more than half determined at the age of two and one half years, others at five or six. These estimates are not based upon the extent of the growth, but upon the nature of it, and its power in determining the direction of future growths. Consciousness builds the new always into the old, and the new experience is most easily identified and unified with that which is most prominent in the character established. From this point of view, the estimates given above are not so unreasonable.

LAW II.—CONSCIOUSNESS IS DEVELOPED BY DEGREES: *A.* FROM THE INDEFINITE TO THE DEFINITE. *B.* FROM THE OBSCURE TO THE CLEAR. *C.* FROM DOUBT TO CERTAINTY.

Proof.—The slow development of consciousness in animate beings in general has been alluded to, also its growth in the improvement of races and in the progress of the individual. It needs only to be added to these facts that development of consciousness is gradual in each separate mental activity.

A. Consciousness Develops from the Indefinite to the Definite.

The form, the parts, and the qualities of objects are not determined with exactness by the first impulse of perception. Consciousness meets with these differences in the senses, and gradually recognizes them. This law points out the natural order for description and definition. The object should be set forth by something from which it can be recognized in its general relations, and the attention should then be called to the features that are more peculiar, and finally an exact description given. In describing a piece of property, a deed runs somewhat as follows: "All that tract of land situated in the village of ——, township No. —," and so forth, "and bounded as follows." Those things which can be represented most easily, and which will aid most in forming an exact conception to which other parts of the description may be added so as to form a consistent whole should be given first, and the details should follow.

B.—Consciousness Develops from the Obscure to the Distinct.

(1.) The activity of the senses in perception is more instantaneously distinct than conceptions brought back in memory and the thoughts conveyed by language. The eye will reveal in a moment what it would require a long time to tell, though our language were as rapid as it is possible for one to follow with distinct thought. Yet even the activity of the senses begins in obscurity. The first conscious impressions require days or even weeks to develop into distinctness. Memory, in its first efforts to recall the past, only brings back a dim remembrance which must be developed into clearness. Comparison brings out a sense of likeness and difference but slowly, and argument requires time to make itself distinctly felt.

(2.) When a truth is properly presented, time should be given for consciousness to make it clear. The mind is distracted by multiplying words. In an argument, a few things made clear will have more weight than many well-made points left indistinctly in the mind. All that can be done, at best, is to direct the attention, and this is most satisfactorily accomplished by the mind itself in the effort of consciousness to identify and unite, if the elements have been adequately set forth. If an experiment is to be performed let the steps be orderly and slow, and leave it for the observer to read. If an abstract thought is to be developed from an illustration, be sure to give ample time, and do not suppose words will help when the thought itself is embodied before the mind. Oftentimes a teacher has an itching desire to display his own appreciation of a truth, or the beauty of an experiment, and takes the thought out of a pupil's mind by setting forth his own notions, and almost inevitably misleads by some word or emphasis that is not so suggestive of the truth as the fact itself. It is like the commentary on Pilgrim's Progress which Dr. Thomas Scott presented to a friend whom he thought too illiterate to understand the noble thoughts of Bunyan without explanation. When the author asked his friend how he enjoyed the book, he was told it was all very clear except the notes.

(3.) Some conceptions require much time under the most favorable circumstances to develop into distinctness. We have seen how slowly the idea of consciousness itself has made its way in the thoughts of men. The term *a priori* suggests a conception which has floated in obscurity down the ages, and does not now find an explanation satisfactory to all, because it is so indistinct in its abstractness that all can not see it alike. But there are some truths which the development of the race has made it possible so to present as to arouse with certainty a clear consciousness of what they are and of their validity. The fundamentals of these truths are mainly embodied in those things that are taught in schools. It is the chief business of the school to develop these fundamental truths that have been worked out into clear consciousness in the race in such a way that the young may go out into the world with their minds furnished with these clear conceptions abreast of the age in which they live.

(4.) Clearness of conception should be the constant aim. In preparing a reading lesson, for example, the sentence should be so studied that a glance will bring its thought into consciousness as a unit. The reader should no more advance in the sentence word by word, in conceiving it, than he does letter by letter in conceiving the word. In studying Arithmetic, the pupil gets nothing of practical value that he does not master by a clear conception. Abstract as the subject is in its essence, there is not a principle nor a process that can not be illustrated, and this makes the subject well adapted to children. Not less should every principle of Grammar be made so clear that a rule or statement will mean something real. To carry out this Law in practical teaching, a teacher must learn to wait. By experience he will learn where to wait.

C.—Consciousness Develops from Doubt to Certainty.

(1.) When two things compared together are brought into consciousness as being what they are individually by an act of perception or of memory, it requires a still further act identifying them. This act is not instantaneous, but it progresses from doubt to certainty. The unification is at first hypothetical, then probable, then certain. The degree of conscious assurance is shown by the manner of asserting identity between subject and predicate, and is expressed sometimes by the mood of the verb, and sometimes by such modal adverbs as *perhaps*, *possibly*, *probably*, *certainly*, which modify, not the predicate, but the copula; and such expressions as *I suppose*, *I think*, *I am sure*, used parenthetically. Thus, in the lines of Milton,

> "Perhaps their loves, or else their sheep
> Was all that did their silly thoughts so busy keep,"

perhaps implies no obscurity of the conception, but the uncertainty is in the connection expressed by *was*. The writer could not make his assertion positively. As we regard the two members of a comparison attentively, the mind becomes gradually fixed in its positive assertion of identity.

(2.) The assertion of non-identity, or the denial of a thing, is a logical deduction from a failure to find identity, or it is based on such a law as the law of contradiction, that a thing can not both be and not be at the same time. This assertion of non-identity, then, depends in the first place upon the power of the mind to identify, and is gradual in its development.

LAW III.—DEFINITE, CLEAR, AND POSITIVE CONSCIOUSNESS IS THE LIMIT OF MENTAL DEVELOPMENT.

First Proof.—This Law may be drawn from the General Law of development and the preceding Law. If development depends on identification, and identification progresses toward a definite, clear, and positive consciousness, then these are the limit of development.

Second Proof.—When the mind becomes satisfied that it has reached the boundaries of a field of thought, and all its features are clearly brought out, and consciousness has classified its truths with certainty, we cease to speculate in regard to it, and look for other fields to develop. One who catches at unimportant and fancied resemblances, and wastes his time in testing the fictitious, is like a man who threshes over the same old straw from which the wheat has already been separated, or like the miner who hoards fool's gold.

OBSERVATIONS.

(I.) On the truth of this Law depends the progress of civilization. The rule is generally laid down in Methods of Teaching that the teacher should follow the order of nature. But the objection arises at once that nature treats all alike, and if each generation learns as the generation preceding it learned there could be no progress. The Law here laid down meets the objection. The order of nature does not require the child to wander in all the by-ways of life, and stumble against all the obstacles that lie in the devious paths his father trod. When the direct road to a given end has been made plain and sure by the experience of one generation, the next may follow it without exploring all the winding paths which led pioneers astray.

(II.) In this law we find a basis for the trust which is naturally placed in authority. When a clear and definite statement is made, if we put confidence in the intelligence and honesty of its author, consciousness asks no more for the sake of certainty, and the mind rests in this authority. Mistakes from credulity render us cautious, but trust in authority is a necessary principle of mental activity.

LAW IV.—MENTAL ENERGY IS LOST IN PROPORTION AS IT FALLS SHORT OF DEVELOPING INTO DEFINITE, CLEAR, AND POSITIVE CONSCIOUSNESS.

First Proof.—In seeking to gain an understanding of any truth, our knowledge must be clear, definite, and positive, to be of use. If it fails in these respects it is not relied upon nor cherished in the memory, and the energy spent in gaining a dim and uncertain understanding is more or less wasted.

Second Proof.—If the feelings are excited, they will be developed in proportion to the completeness with which the activity comes into consciousness. Harmony of sound and color must strike the ear and eye with a clear and positive sense of beauty or it will fail to develop the taste. Moral truth must strike the conscience as clearly and positively moral truth or it will be no guide for life.

Third Proof.—In the case of volitions, the law is still more plainly applicable. A volition is completed only when a conscious effort is put forth to attain an object desired. Any thing short of this effort is a failure of volition. But when a desire becomes definite, clear, and positive, it results in an effort of the will, while it falls short of a voluntary effort if it fails of these characteristics.

Observations.

(I.) As undertakings should, in general, be carried through to completion in order to make them profitable, so in order to succeed in developing intellectual power, mental activity must be continued till permanent forms are gained. It has been a criticism of the early battles fought in Virginia for the preservation of the Union that they were not fought through. Many a lesson is lost, many an intellectual struggle is rendered fruitless by being cut short before the end is reached. There should be a distinct end in some unification, and it should be held that until this is gained nothing is gained. Take, for instance, the inventor. However perfectly he may conceive of some parts of his machine, it is of no value until he gains a clear conception of all the parts in combination as one working machine.

(II.) To avoid waste of energy from a failure to carry out an intellectual undertaking, a teacher should exercise care not to make lessons too difficult. A short and simple task, well mastered, is worth more than a long and difficult one half done. The habit of sitting and poring over books from which not an idea is gained, and of moping over a recitation or a task in composition, when there is no clear thought to express, is alike a waste of time, a waste of energy, and an injurious habit.

(III.) It should be remarked that, according to this Law, we are not justified in laying down the rule that pupils should never be required to commit to memory what they do not understand, unless we limit the meaning of "understand." If a pupil is studying a lesson for the purpose of gaining an understanding of its contents, it should be within his ability to understand; but if he is studying it to commit to memory, it may possibly be that no attention should be paid to the question of his understanding it first. Other things being equal, the laws of memory would require an understanding first, but we come to understand nothing perfectly, and some truths may be profitably stored in the memory for future use before the understanding is developed to do more than grasp the outlines.

(IV.) The truths that should be taught without reference to an understanding of all that is involved in them at first are those fundamental truths which have grown with the slow growth of civilization, and are the basis of thought and action. Too much time may be spent in trying to develop the principles of the decimal system of notation before practice in writing and reading numbers is required. All the principles of number are involved in addition and subtraction, or perhaps even in addition, but it would not be profitable to detain a child on these fundamental operations till these principles were developed. What is simple about them, and what can be readily understood, should be made clear, and then the processes may be employed in advanced work. In the same way, fundamental moral principles should be laid down for practical guidance without reference to doubtful and puzzling questions that may arise in connection with them.

Law V.—Degradation into the More Uncertain, Obscure, and Indefinite is the Direction of Least Resistance in Mental Energy when Excited to Activity.

First Proof.—To hold even one of the most familiar truths before the mind so that it stands out in consciousness in all its outlines and details as a certainty, requires more energy than to hold it in dim outline, and accept its validity because we see no reason to deny it.

Second Proof.—The faculties of the mind generally tend in the direction of the uncertain, obscure, and indefinite, unless the energy of the mind is continually stimulated to renewed activity.

Third Proof.—In passing from an easier to a more difficult form of activity, as from perception to reasoning, the consciousness is at first more vague and less certain, and requires an additional impulse to make the reasoning distinct. Generalizations and abstractions require a strong effort to bring them into perfect consciousness.

Observation.

The waste of mental energy from failing to develop a perfect consciousness, and from the consequent degradation and dissipation of force, is the most serious loss to which the mind is subject in its struggle to gain power. When we consider the time spent in studying truths which are not incorporated with the mind, when we consider the feeble response awakened by the myriad forms of beauty that continually appeal to the eye and ear, and the feeble response of conscience to the beauty of moral truths and deeds of righteousness, when we think of the drudgeries of work that in our conception are only related to existence instead of being built into a noble, exalted, and hallowed life, we can see something of the fearful waste of energy that comes from making the aim, the unifying principle of life, so narrow that effort is dwarfed, and actual achievement loses its value. The loss comes from ceasing to fight before the battle is finished. The energy excited to activity will be conserved only as we make the end of life true and large enough to afford a distinct and sure place for every deed worthily done, and every thought truly gained, an end that will harmonize them all in conscious unity.

CHAPTER III.

NATIVE ACTIVITY.

BY Native Activity is meant the activity of native energy. This is what is usually called self-activity. Attraction may be said to be a native activity of matter, because it is a power dependent upon the nature of the attracting body, which other bodies only make manifest by calling it into action. Resistance in matter is a native activity when it is manifested in repulsion. When a child sees an object which it desires, and reaches out its hand for it, we trace the action to the native activity of the will, a power called into exercise by the presence of the object desired.

2. That the powers of the mind are not to be traced to any force belonging to matter has been shown in the chapter on Physiological Relations. But it is of so great importance for the teacher to recognize the fact that all activity of the mind is native activity, that the subject is taken up here in detail, and the special laws of the mind in relation to it given more at large.

LAW I.—ALL MENTAL ACTIVITIES SPRING FROM A LATENT POWER OF ACTIVITY NATIVE TO THE MIND.

First Proof.—Perception is a native activity. That there is a relation between an object seen and the organic sense of sight, such that the vibratory motion coming from an object is transferred to the optic nerve in a manner similar to the transmission of force from one object to another when motions of other kinds are produced, seems a reasonable explanation of the conditions for vision. But this is not sight. Light from an object makes an impression on the sensitized plate of a camera. But we do not say the camera sees the object. The question may be asked how we know the camera does not see the object. Such a question is sometimes put as if to throw doubt on the distinction made between mental energy and physical force. But it is rather an evidence of the necessity for the distinction. The very asking of the question shows that no one is so bold as to say that the physical impression is sight. The question assumes that for sight to be possible there must be some power of consciousness in the camera to perceive, and the thing asked for is how we know there is not this consciousness there. In order to produce any perception there must be not only an impression, such as that of light on the sensitized plate, but an activity comparing this with other impressions of the past, and such a comparison always implies mind as its source. The activity of perception, then, can be traced to mind and no further. The moment we leave conscious mind we get no activity of perception.

If perception is a native activity, then all the higher exercises of consciousness are native activities. In the first place, they all depend on the perceptions, and without the native activity of perception they could not exist. In the second place, whatever is peculiar to these activities, that is, whatever belongs to them apart from perception, can only be traced to inherent powers of the mind. After perception, there is no element of power introduced from abroad. In the third place, the same element of comparison which is found in perception is found as an essential element in all cognitions, and the feelings and volitions depend on the cognitions.

Second Proof.—In what we call the interchange of thought, or the imparting of instruction or information, the ideas must be formed in the mind of the learner by his own mental activity. All the instructor can do is to represent ideas by symbols that have no resemblance to the form of the ideas in his mind, whether they be vocal sounds or written characters, and the learner must have the power to form the same ideas in his mind, or he will fail to follow the thought expressed by the symbols. There is no transfer of mental power from one mind to another, either directly or indirectly. However plainly an idea may be represented, it will have no effect on a mind that is not in a condition to form it for itself. The principles of science are not more clearly manifest in nature to-day than formerly, and the ancients had minds to formulate the laws of science as we have, but the minds of men have only been prepared by degrees to see these principles and infer the laws.

Observations.

(I.) The teacher should realize the limited range of duties to which his responsibilities are confined. He can not think for his pupils, he can not feel for them, he can not form resolutions for them. For him to set his thoughts, feelings, and resolutions before them, and think he has imparted these exercises of his mind, and that his pupils have them because he has set them forth clearly, is a piece of self-deception, and the most common of all a teacher's mistakes; and it is, if possible, more harmful than common. Examination day reveals startling mistakes of pupils that a teacher would not imagine possible when he is trying to give instruction, but which, from the pupil's point of view, are more natural inferences than the truth would be.

(II.) The teacher should not expect a pupil to take his place in looking at a subject, but he should himself seek the position of the pupil, and try to bring truth within the range of clear vision from that point of view. Legislators who mingle with the people, lawyers who know the men likely to sit in the jury box, ministers who make themselves acquainted with the daily lives of the members of their congregations, and teachers who become familiar with the grade of intelligence of their pupils, with the thoughts that are accustomed to occupy their minds, and with their habitual conduct under various influences, have a great advantage in doing effective work. A whole battery of artillery fired at random may fail to drive a squad of the enemy from the woods, when a few well-directed rifle-shots would scatter them at once. The teacher should economize time and energy by adapting himself to the thing that needs to be done.

(III.) In teaching, one should aim at individuals rather than at a class as a whole. The method of teaching pupils by classes instead of separately is liable to lead to the neglect of individuals. Especially is there danger if a teacher depends much upon answers given in concert. If one pupil gains the thought desired, another is likely to do the same, and the portion of the class that needs the development of that thought, and is prepared for it, will receive precise and certain instruction. Other portions of the class will be taken in the same way for what they most need in their turn.

(IV.) Teachers should guard against being too severe in their judgments. They should bear in mind that pupils are not educated up to their standard, or they would not need instruction from them. Children should be judged in the light of their attainments and capacities. By taking pains to find out the mental and moral ground on which a pupil stands, the teacher will not only increase his ability to give the aid required, but he will awaken expectation and hope in the mind of the child. The consciousness of the power to do a child good will also strengthen the desire to do what is already the teacher's duty, and often the better understanding will modify the judgment as to the child's character. Teachers often complain that parents do not know what their children do at school. If the teachers realized what forces secure better conduct from the same children at home, they would make better use of the opportunities and advantages that come to them.

(V.) A pupil gains a conception of a subject which is not in the form of the teacher's conception of it. It is perhaps not the best form, but it is the way in which the subject presents itself to the pupil, and the conception has truth in it. But the study of the subject all goes for naught because the teacher sets up a standard by which the pupil's thoughts can not fairly be judged. If the pupil has really studied, and if his thoughts are capable of being made clear and consistent, it is better to lead him to continue his notions to their legitimate conclusion, and then point out a better way, if there be one, than to stop his thinking entirely by attempting to substitute foreign thoughts for his own. Any honest effort to express thoughts that come from honest study is worthy of consideration.

(VI.) A teacher should show the same fairness in estimating the value of answers to questions in examination. Some answers may be called perfect, and some failures, and many will lie between the two extremes. In some cases there is no middle ground, but generally a pupil may show a commendable knowledge of a subject without being perfect.

(VII.) The individuality of pupils should be studied and their best powers developed. Differences in native endowment, and differences in training lead individuals to form different views of the same subject presented in the same light. Each should be allowed his own view, because it is his as much as his hands or his eyes, and he should be encouraged to hold it, so far as it conforms to the truth, and an effort should be made to supplement each view with that which is necessary to harmony. Two persons visit Niagara Falls. One looks upon the scene with wonder and admiration, and sits down to express his ideas and his emotions on canvas. The other sets himself to work to devise some plan by which the power he sees displayed may be saved for the use of man. The two may not have a thought in common, and yet each displays the highest skill in his own way. If the artist were to be judged by a commercial standard, he would be rated very low. The same would be the judgment if the inventor were tried simply by the rules of art. If the artist had been educated only in mechanical pursuits, and the inventor only in art, no standard of judgment would place either of them very high. Neither could be fairly judged till his best powers had been developed.

(VIII.) Sometimes the best powers of a man escape observation till late in life, when they are suddenly brought to light by the force of circumstances, of which no artificial system of training can take the place. Such in an eminent degree were Oliver Cromwell and General Grant, and such in a lower measure are many others, whom nothing but the actual struggles of life seem able to arouse to the display of their greatest powers. But while no school can be made a complete substitute for experience, it nevertheless remains true that nature has appointed the time of life when large experience of the world is impossible as the time of the greatest plastic possibilities of the mind. It is clear from this order of nature that the mental faculties should be largely developed before the responsibilities of life are felt in their fullness, and that the teacher should not leave the most fruitful powers of one to lie dormant because they differ from the powers of another.

(IX.) The teacher should not be satisfied till the pupils have clothed their thoughts in some form of clear and correct expression. Only in this way can he make himself sure what these thoughts are. It is not enough that a class appears interested. This is only an indication of the degree of activity,—not of the kind or value. The ideas may be numerous and entirely erroneous or of little use.

Law II.—Native Activity is Developed by a Succession of Different Impressions.

First Proof.—This law is but a direct application of the general law of mental activity. The natural tendency of mental energy to unification is native activity, and as unification is equilibrium, it requires differences to excite action.

Second Proof.—Every scientific discovery brings to light many new discriminations, and serves as a new impulse to mental activity. The discoveries and inventions of Harvey and Jenner, of Copernicus and Newton, and of Watt and Morse, have marked epochs in the world's progress, and increased the sum of its activities.

Third Proof.—The development of new industries opens a wider range and creates greater diversity in the objects that engage thought, and thereby gives a new impetus to mental activity.

Fourth Proof.—The division of labor narrows the range of necessary thought for any one individual, and diminishes mental activity.

Observations.

(I.) The most important means of stimulating thought is experience. All else depends upon this. When we are told how small a proportion of the city children have ever seen a cow, a reaper, or a plow, and how small a proportion of country children know any thing of city life and habits, we should realize the necessity of training the senses, and furnishing them with the knowledge of experience before attempting to draw inferences for them by the use of words that have to them no meaning. When it is said that one half of the world does not know of what the other half is thinking, it might be added that it would not know if it were told, for it has had no such experience.

(II.) Pictures, language, and other signs, when understood, represent a wide range of objects of thought almost instantaneously, and should be substituted for objects as soon as they are clearly comprehended. Language is especially the means of stimulating thought, because of its ability to condense truths and make clear distinctions, and because of the readiness with which it may be used. If we are sometimes astonished that people have seen so little of life, we should be more astonished at their inability to name, or in any way represent to themselves a large proportion of the things they see. Language should be cultivated side by side with experience as a means of stimulating mental activity.

(III.) One of the most important means of stimulating thought is questioning. This art should be studied alike with respect to its aim, its logical order, the subject about which something is asked, the predicate, and the form. By the aim of a question is meant the thought it is designed to stimulate. By the form of a question is meant, in this connection, the force of the copula as determined by its form, position, and modifiers. From this law, three rules for questioning may be drawn in regard to the aim of a question.

RULE 1.—*Let every question be based on a clear discrimination, possible to the mind of the pupil.* This is a necessity, to stimulate activity. If a teacher asks for the subject of the lesson, when the lesson is miscellaneous, the question is not discriminating. Any question that applies to one subject as well as to another is not discriminating. The question should set the mind to thinking on some point essential to the lesson. It is not enough that a point is marked off by differences; it should be marked off by such differences as lead the mind to connect it with the general thought, or it will lead to confusion, not to clear discrimination. To ask who is the author of a certain historical statement, and who is the author of a mathematical demonstration, are questions equally distinct in themselves, but they do not equally lead the mind to proper discrimination. In the first case, the authorship largely fixes the value of a statement. In the latter case, to associate authority and reasoning is misleading.

RULE 2.—*Let the questions of a lesson present diversity.* The teacher should be prepared to call up in succession a variety of distinct topics, to maintain activity in the minds of pupils. The remark should be repeated here, which has been made elsewhere, that to be tired of a thing does not of necessity imply exhaustion. To dwell on a single topic with distinctions too slight to impress the mind of a pupil makes the mind dull, and develops no power. No set time should be allotted a point, nor should a teacher dwell upon each part of a lesson with the same degree of particularity, without regard to what the pupil knows before he begins; but a point should be held up until clearly perceived, and then a different point should be immediately entered upon. To be able to pass from point to point rapidly, and make the points distinct and various, requires careful preparation.

RULE 3.—*Let the questions on a lesson be complete as a whole*, so as to lead to the completion of the unification in the end. However rapidly some of the points are passed over, all should be brought up to the mind, that each part of the unification may be distinct.

(IV.) Unification requires that however diverse the topics discussed under a general subject, there should be some clearly discerned element by which they may be bound together, and which shall aid the mind in determining the character of the discriminations to be held in view.

LAW III.—NATIVE ACTIVITY IS DIRECTED BY THE CHOICE AND ARRANGEMENT OF STIMULANTS.

As already stated, there is a line of least resistance in the case of mental energy, as of physical, but the mind also seeks the direction of the exciting cause. The proofs of this are conclusive.

First Proof.—The form of activity in perception,—that is, the perception of color, sound, taste, and so forth, is determined by the stimulus presented to the senses. Memory is determined by the direction given to thought by the will or by some accidental circumstance. The conclusions of reason are determined by the arguments held before the mind. In the same way all the faculties act in the direction of the stimulating cause.

Second Proof.—When different stimulants act at the same time, one may be so strong as to attract the entire attention, or the energy may be divided and leave the activity indistinct. For instance, the mind may be so active in thinking as to be unconscious of physical pain, or the pain may be so great as to render consecutive thinking impossible, or a slight weariness may render thinking languid, while there is a continual feeling of uneasiness. In any case we see activity following the direction of some stimulus.

Third Proof.—In the case of the will, opposing motives produce indecision, and the weakest motive prevails and produces activity in its direction if the stronger motives are obscured or cut off from view.

Observations.

(I.) The elements of a subject, as they are taken up successively, should be arranged in such order as to lead the mind to form its conception of the whole most naturally. What rules may be laid down to determine this order, it will belong to the laws of unification to suggest; but without these rules it may easily be seen whether a point bears on the end aimed at or not, and a teacher should so present each point he makes that the pupils will see the bearing on the general conception.

(II.) A question must lead the mind if it stimulates thought. But it should do this by presenting discriminations for comparison. Its form should not suggest the unification sought, or the pupil will accept this and return it for an answer, instead of making the required comparison for himself. It should compel the mind to make the comparison of things and arrange the answer from its unifying of these. This general rule covers the ground of many of the special rules for questioning. Such are the cautions against asking leading questions, giving in a question the information for which it asks, asking questions that can be answered by yes or no or other easy guessing, intimating by voice or by a significant word what answer is expected, and so forth.

(III.) The following additional rules for questioning may be deduced from this law.

RULE 1.—*Let the aim in a question possess a logical order.* A series of questions should be progressive, with the purpose of drawing out thought in the answers that will fairly represent the entire subject in its completeness, and with a due relation and proportion of parts.

RULE 2.—*Let the subject in a question that is to be compared with the predicate for unification be such as can be held in the mind of the pupil as a single unit.*

RULE 3.—*Let the subject be definite*, that it may be held without confusion. This requires that it should not only be definite in itself, but also in the mind of the pupil.

RULE 4.—*Let every question be clear in all its parts*, that a comparison may reveal identity and non-identity with certainty.

(1.) It must be borne in mind that the word simple is relative in its application. What would be simple to one would be complex to another. In Arithmetic, that about which something is asked is often too complex for an untrained mind, and it should be simplified by dividing the question. The question, What is the cost of a lot 100 rods long and 60 rods wide, at $75 per acre? may be easily divided into three parts: how many square rods? how many acres? what is the cost? To make a question simple in this way is much better than teaching to imitate the method of its solution.

(2.) If to the above question it were added that ten acres were swampy and worthless, the subject would be made indefinite; that is, it does not indicate itself what conditions are to be put together and identified in the result. The swampy land would be looked upon naturally as affecting the result, but when the question is examined carefully, it is found it has nothing to do with "what is the cost?" It leads only to confusion, and is opposed to activity.

(3.) The subject should be clear in itself. In the last case the subject was clear when standing alone, but was indefinite when compared with the predicate. A subject may be definite and not clearly put. The terms used should be such as to be clearly understood, and they should stand in a natural order.

(4.) A question may be asked either to lead to activity of the faculty of judgment or to determine certainty of judgment. In the first case, the question should present variety for comparison; in the second place, definiteness of the objects to be compared.

To develop activity, Rules five, six, and seven are given, as follows:

RULE 5.—*Let the predicate in a question be general;* that is, let it designate a class of things to which the subject belongs, and with which comparison may be made for identification. It should indicate a sufficient number of things to develop judgment.

RULE 6.—*Let the predicate be definite*, in order that when the comparison is made the identification may be certain. Sometimes a definite predicate is not clear to a child, in which case clearness must be developed before certainty is possible.

RULE 7.—*Let the predicate be unambiguous.* The mind should not be left in doubt by holding up two sets of ideas with which to compare the subject.

RULE 8.—*To develop certainty of judgment, let the predicate be simple, definite, and clear* like the subject and for similar reasons.

RULE 9.—*Let the mode of asking a question be without prejudice.* Nothing in the tone, inflection, or modification of the copula should indicate what answer ought to be given. Having the two terms of the comparison, the identification ought to be left to consciousness. Yet, if there is reason to fear that an answer has been made or will be made without thought, a misleading tone or form of question may be a good method of detecting it.

The rules for questioning derived from this law may be summed up and tabulated as follows:

A. GENERAL RULE.—A question should develop comparison and unification in consciousness.

B. SPECIAL RULES.

(1.) The aim in a question should be adapted to a logical order.

<table>
<tr><td rowspan="3">(2.) The subject should be</td><td>1. A simple unit.</td></tr>
<tr><td>2. Definite.</td></tr>
<tr><td>3. Clear.</td></tr>
</table>

<table>
<tr><td rowspan="6">(3.) The Predicate</td><td rowspan="3">To lead to activity should be</td><td>1. General.</td></tr>
<tr><td>2. Definite.</td></tr>
<tr><td>3. Unambiguous.</td></tr>
<tr><td rowspan="3">To determine certainty should be</td><td>1. Simple.</td></tr>
<tr><td>2. Definite.</td></tr>
<tr><td>3. Clear.</td></tr>
</table>

(4.) The form or mode of the question should be without prejudice.

C. Illustrations.—Skillful questioning so well illustrates the laws of development, and the art is so important, that some examples are here given to make the above Rules more clear and to enforce their importance.

(1.) Suppose a teacher to be giving a lesson to children on plants. He may tell them that if they will examine, they will generally find that the flowers have an outer cup of a green color, called a calyx, which is separated into leaves called sepals; that inside the calyx is another cup, blue, white, or some other color, called a corolla, the leaves of which are called petals; that around inside the corolla is a row of thread-like stems called stamens; and in the center, a slender stem different from the stamens called a pistil. He may describe the shapes and uses of the different parts, tell how the plant is nourished, what chemical changes are produced, and so forth, till he has given a complete description of plants in general, and explained clearly the processes of growth and fruitage.

The lesson may be very plain to the teacher, and it may seem to him so simple, accurate, and orderly that no one can miss the different points. But if we ask what is the value of the lesson to the class, we must not be satisfied with their expressions of wonder, nor with what the lesson contains; we must ask how much unified thought it has developed. Taking this as a basis of judgment, we shall find that the children have been able to form very few notions corresponding to the notions of their teacher, because they have never observed plants in a way to gain concepts of the things described, and that the lesson, which seems so perfect in itself, is almost valueless to them.

(2.) Let us now suppose a method of questioning adopted for the same lesson, with specimens before the class.

If different kinds of flowers are taken, and the fact is first developed that some have the calyx and others do not, Rule I will be violated, because an attempt is made to classify flowers before developing the idea of a flower.

If flowers of a single kind are given and the children are asked what they see about them, they will give different answers. This shows that the subject asked about is not a simple unit. One unifies one part of it, and another another part.

If the question is asked how many parts are found in the flower, the subject, "parts," will be indefinite, for the children have not yet learned where to make the divisions.

If the seed is small and it be asked what is its shape, the subject will lack clearness. It may require a glass and some experience to see distinctly the form of a small seed.

On what part of the stamen is the anther found? contains a predicate that calls for little discrimination, and may be used to develop certainty, but not activity of judgment.

Where do the stamens stand? is ambiguous, for the answer might refer to their being inside the corolla, or their position on some other part of the flower.

(3.) But if the teacher puts flowers, all of one kind, into the hands of the children, and says he wishes them to take them to pieces, for he is going to tell them about the parts, and then has them begin by taking off the calyx and laying the sepals by themselves, and so on with the other parts, he may call attention by questions to the differences between the parts, their color, form, number, and so forth, in a manner easily leading to the identifications he desires them to make.

(4.) Let us take an example of questioning borrowed from Socrates.

The following is abridged, but not otherwise changed, from a section of Gorgias, Jowett's translation. Socrates is seeking to show Callicles that pleasure and pain are not the same thing as good and evil, and that good is not to be sought by wise men for the sake of the pleasant, but the pleasant for the sake of the good.

After several attempts of Socrates to secure from Callicles a definite answer to the question, Whom do you mean by the better? the dialogue proceeds:

Socrates.—I wish, my friend, you would tell me, once for all, whom you affirm to be the better and superior, and in what particular?

Callicles.—I have already told you that I mean those who are wise and courageous in the administration of a State; who ought to be rulers over their States, and ought to have an advantage over their subjects.

Soc.—What! my friend, are they to have more than themselves?

Cal.—How do you mean?

Soc.—I mean that every man is his own ruler.

Cal.—What do you mean by his "ruling over himself"?

Soc.—A simple thing enough; just what is commonly said, that a man should be temperate and master of himself, and ruler of his own pleasures and passions.

Cal.—How charming! you mean those fools—the temperate?

Soc.—Certainly: any one may see that to be my meaning.

Cal.—Quite so, Socrates; and they are really fools, for how can a man be happy who is the servant of any thing? The truth is this, that luxury and intemperance and license, if they are duly supported, are happiness and virtue: all the rest is a mere bauble, custom contrary to nature, fond inventions of men nothing worth.

Soc.—Then those who want nothing are not said to be truly happy?

Cal.—No, indeed, for then stones and the dead would be happiest of all.

Soc.—The life, then, of which you are now speaking, is not that of a dead man, or of a stone, but of a cormorant; you mean that he is to be hungering and eating?

Cal.—Yes.

Soc.—And he is to be thirsting and drinking?

Cal.—Yes, he is to have all his desires about him, and to be able to live happily in the gratification of them.

Soc.—Go back to our former admissions. Did you say that to hunger was pleasant or painful?

Cal.—I said painful, but that to eat when you are hungry is pleasant.

Soc.—And thirst, too, is painful?

Cal.—Yes.

Soc.—And you would admit that to drink when you are thirsty is pleasant?

Cal.—Yes.

Soc.—And in the sentence which you have just uttered, the word "thirsty" implies pain?

Cal.—Yes.

Soc.—And the phrase "to drink" is expressive of pleasure?

Cal.—Yes.

Soc.—There is pleasure in that you drink?

Cal.—Certainly.

Soc.—When you are thirsty?

Cal.—Yes.

Soc.—When in pain?

Cal.—Yes.

Soc.—Do you see the inference that pleasure and pain are simultaneous?

Cal.—True.

Soc.—You said, also, that no man could have good and evil fortune at the same time?

Cal.—Yes, I say that.

Soc.—But you admitted that when in pain a man might also have pleasure?

Cal.—That is evident.

Soc.—Then pleasure is not the same as good fortune, or pain the same as evil fortune, and therefore the good is not the same as the pleasant?

Cal.—Do you suppose that I or any other human being denies that some pleasures are good and others bad?

Soc.—Then I may assume that some pleasures are good and others evil, as I understand your present meaning?

Cal.—Yes.

Soc.—And in the same way there are good pains and there are evil pains?

Cal.—To be sure.

Soc.—And ought we not to choose and use the good pleasures and pains?

Cal.—Certainly.

Soc.—Then pleasure as well as all else is for the sake of good, and not good for the sake of pleasure.

The method here adopted, which is the method of all the Socratic dialogues, presents the following points:

First.—Though several persons are present, Socrates does not enter into a general conversation with them, but addresses one, and selects the individual most difficult to be convinced.

Secondly.—He asks about a definite subject, as about the better or superior, about pleasure and pain.

Thirdly.—He sets the learner to talking about the general predicate with which the subject is to be compared, and thus leads him to form as clear a notion of it as possible. In this dialogue, Callicles makes a long talk (the most of which is omitted above) about the pleasure which the better class ought to enjoy, before Socrates asks many questions. It is in describing this pleasure that he shows he has not carefully considered what the word involves. When the true conception of pleasure is clearly defined, it is easy to see it is not the same thing as the good.

Fourthly.—The learner shows he has not a clear conception of all that his predicate contains, and he makes a mistake in identifying his subject with it. It is the great work of Socrates so to analyze this predicate as to bring a clear and positive judgment into consciousness. This will be as near the truth as it is possible to attain. Most of the questions above have this purpose, and as clearness and positiveness are all they seek, they simply call for affirmation or denial.

Fifthly.—The dialogue passes rapidly and distinctly from point to point, and gives activity to thought and variety to conception.

Sixthly.—There is steady progress, each question being in its place.

Seventhly.—Intellectual weariness is relieved by frequent sallies of wit, or other appeals to the feelings. In parts omitted from this extract, one appeal is made to the sense of the ridiculous, one to Callicles's personal sense of honor, and when Callicles is convicted of error, and tries to escape admission by protesting against the question as "narrow and little," Socrates answers, "I envy you, Callicles, for having been initiated in the great mysteries before you were initiated into the little. I thought that was not allowable."

LAW IV.—THE NATURAL TENDENCY TO ACTIVITY MAY BE RE-ENFORCED AND DIRECTED BY THE WILL.

First Proof.—The will may hold up motives as a stimulus. The fear of pain, the hope of reward, a sense of duty, and so forth, are general stimulants to activity, and increase the effect of specific stimulants that are adapted to the particular faculty brought into activity. Perception is made keener, memory quicker, and resolution stronger, if there is an important end to be gained beyond the immediate activity.

Second Proof.—By the exercise of the will the attention may be directed and the mental energy concentrated on one object. A feeling of pain may be reduced below consciousness, sometimes, by concentrating the mental energy on objects of thought. The indecisive activity of a languid state may be made clear and vigorous by force of will.

OBSERVATIONS.

(I.) Love of knowledge is the natural stimulus to voluntary activity. But it can not be enforced as a duty, nor created by reasoning upon it. It can only be felt when the knowledge is acquired. As heat ignites fuel, and fuel ignited produces heat, so the activity of conscious knowledge gives pleasure, and the pleasure stimulates activity. The manifestion of this reciprocal action is so constant that it is usually safe to infer that if a pupil does not like a subject he does not know much about it. The way to produce a liking for a subject is to give some true knowledge of it. A person can not tell whether he will like a strange fruit or not by looking upon it and handling it, but by tasting it. Let a child have a taste of the subjects he tries to handle. A pupil will be pretty sure to dislike a subject on which he is required to spend time, unless he is made to get some knowledge out of it. Pres't M. B. Anderson once said to a class, "Young gentlemen, you complain of not having a taste for mathematics. Get a taste of it and you will like it better."

(II.) Rewards and punishments have always been used by teachers as a stimulus. They act mainly through the will. They may come as a necessary result of activity, or depend upon the will of another. In either case they lead to activity through the will. In the first case the result is natural, certain, and invariably proportioned to the activity. This is a most wholesome stimulus. But children must be saved from the natural consequences of their acts. They can not feel the force of results removed but a little way from conduct, and there is no natural result following from obedience to the will of another as obedience except what is determined by that will. Arbitrary rewards and punishments are therefore a necessity, and in case of developing the sense of simple obedience, and enforcing obedient conduct, they are the only stimulus beyond the conscious feeling that attends the act. But, as the mind is developed, less use should first be made of arbitrary promises and threats, then of natural rewards and punishments, and in the end love for the thing to be done, or love of doing, should be a sufficient motive.

(III.) In the preceding Observation, stimulants are divided into three classes: 1st, The immediate influence of that which is presented to the mind; 2d, Natural and necessary results; 3d, Arbitrary consequences. These are also graded, the order of superiority being that in which they stand. In the second and third grades there is much opportunity for choice, and care should be exercised to use always the highest motives that will be effectual. Corporal punishment is the most general of all arbitrary punishments; that is, it points to nothing particular in conduct except its general character, and is therefore best adapted to develop the consciousness of a wrong act as wrong. Punishments that are adapted to the wrong done lead to a consideration of the differences between acts when the ability to exercise a sense of wrong has been developed. The more prominent the features of natural effect which arbitrary rewards and punishments have, the higher the motive they involve. Arbitrary punishment for any failure leads to an association of that which is unpleasant with what ought to be done, and is therefore a stimulus of a bad character, and should be avoided if possible.

CHAPTER IV.

DISCRIMINATION.

DISCRIMINATION and unification are activities in opposite directions. They are represented under such terms as dissimilarity and similarity, unlikeness and likeness, analysis and synthesis, and both are included in comparison. They are recognized as fundamental in mental science and in teaching. Sir William Hamilton says: "Comparison is supposed in every, the simplest act of knowledge." Prof. Bain says of likeness, "It is not an inapt or strained comparison to call it the Law of Gravitation in the intellectual world." The proverb, "*Bene qui distinguit, bene docet*," *He teaches well who discriminates well*, is quoted by Rosenkranz in treating of Attention, with hearty approval.

2. If we look from the earth to the sky and observe that grass is green and the sky is blue, we compare two objects in respect to color. In the comparison we find a difference which we represent by calling the one green and the other blue. When we say the sky is blue, we distinguish it from all objects of a different color. If we say the sea is deep and the sky is blue, we do not distinguish the sky from the sea either in respect to depth or color, for we make no comparison between them. It will be seen from this and similar illustrations that discrimination involves (1) comparison proper, or a putting together, and (2) the recognition of difference. Thus, in our per-

ception of the grass and the sky, our acts of consciousness belong to one class, which we call the perception of color, and we distinguish green and blue. Discrimination itself is the consciousness of difference, and involves comparison or unification as an accompanying state of the mind.

LAW I.—THE SENSES AND SELF-CONSCIOUSNESS GIVE DISCRIMINATION, AND THIS IS THEIR SPECIAL FUNCTION.

First Proof.—Differences in external objects are perceived by the senses, and differences of mental state by self-consciousness. The affirmation of difference does not involve consciousness beyond the acts of perception, but a conscious act of comparison involves memory and other mental faculties.

Second Proof.—Without the activity of the senses the first discriminations would not be made. The distinctions made by reflection are referred either to the senses or to self-consciousness as the ground for their validity. Even when we distinguish between *a priori* truths, like the concepts of two circles, we imagine them as presented to the senses.

OBSERVATIONS.

(I.) The senses are to be cared for and trained with reference to their use by the intellect rather than with reference to their physical relations to objects of perception. The eye is something more than a camera used to photograph images. It is said to exhibit poor workmanship if viewed only as to its mechanical conformation, and it gets its images the wrong side up; but as an organ of the mind it is surpassingly efficient. Its use should be directed to the end of securing clear and quick discriminations. When the end is taken into account, no criticism can be made upon it.

(II.) It is a Law of Consciousness that the further a mental activity is removed from the senses, the more difficult it becomes. This is especially true of discrimination. The mind should first be accurately and vividly impressed through the senses. Therefore, words that represent original impressions should be firmly fixed in the mind, and inferences and generalizations will follow more easily. If a general term is obscure, an appeal may be made to a specific term, or the senses may be appealed to directly through the fact itself. An example is better than a picture or a comparison. For instance, if the word web-footed be used and found obscure, a reference to duck's feet may make it clear; if not, then the web-foot itself should be presented for observation.

(III.) Facts should be observed *in situ*, that is, in their natural situation or with their natural surroundings. Most persons will remember the struggles they have had in trying to put together the pieces of a puzzle. They have been given a clear idea of the form of the whole, and they can see the forms of the pieces; but they have not been allowed to observe the relations of the pieces to each other. Different from each other as the bones of a skeleton are, they may be studied and named with the greatest care separately, and yet not all of them be recognized when seen in their natural positions.

(IV.) Things should be seen *in extenso*, that is, in their full magnitude. Comparing great things with small gives but an imperfect conception. Virgil's Tityrus says: "The city which they call Rome, I foolishly imagined to be like this our Mantua. So I had known whelps like dogs, so kids like their dams." But when he saw Rome, it seemed to him to differ from other cities as the cypress differs from the limber shrub. Conceptions of the relations of space are amongst the most important and fundamental conceptions of the mind. Of all conceptions of space, the conception of extent is the most sublime, and it especially enlarges the sphere of the imagination. But this conception can only come from seeing things extended. Travel gives an education, not so much because it enables one to see things new and strange, as because it gives larger conceptions of nature. The sight of a lofty mountain, a great cataract, the ocean, enlarges the power of the imagination beyond any other experience. When Dickens wants to intensify the sense of dreariness, he pictures a vast expanse of London's dreary streets. He takes little Nell out by a way that leads past furnaces glaring through a murky atmosphere with the glow of intense heat, and casting up clouds of smoke and cinders against a dark sky from tall chimneys that stand in rows along the streets they go, furnace after furnace, miles and miles, till it seems to the way-worn travelers that the glare and the smoke and the dust and the day will never end. The view being prolonged, gloom settles down and fills the entire horizon of the imagination, as blackness and spectral forms fill the horizon of vision.

(V.) Besides the intensity and sublimity of thoughts impressed by the vast, there is such an enlargement of the bounds of thought that the imagination finds fitter places for the multitude of things it would distinguish. There is a limit of littleness beyond which the senses can not go. Unless the bounds of vision are enlarged to correspond with the extent of things which we seek to represent to ourselves, the ability to discriminate them and give them proper places and proportions will be limited. The sky shuts down very near us even in our imaginations, unless we have gone beyond where it seems to the eye to meet the earth; and our conception of the things we see, about which we read, and which we imagine, must be seriously distorted if crowded into a world so small. Children have a natural desire to go somewhere. This should be indulged to a reasonable degree.

Law II.—Discrimination is the Starting-point in Conscious Mental Development.

First Proof.—If it be true that the first conscious activity depends upon the senses for its stimulus, and that discrimination is the special function of the senses, it follows that the first stage of activity is discrimination.

Second Proof.—The first conscious activity must be a perception. This perception must be either (1) an absolute unit, that is, without relations or differences, (2) a discrimination of differences in unity, or (3) a unification of differences. It has already been shown that the perception of an absolute unit, if possible, however many times repeated, would not constitute development. The other two possible starting-points involve each other. Whichever of them is first, it presupposes the other. This can only be conceived as possible by supposing one to be developed from the things affecting the senses, and the other from the original constitution of the mind. Conscious unification requires a previous conscious discrimination; but conscious discrimination only implies a native power to distinguish objects as belonging to the same class, and the idea of the class may be undeveloped. We see that there is a bond of unity between the things distinguished only after the discrimination has been made. Thus, an incipient conscious activity would distinguish blue from green without having the idea of colors, as a class, developed. The power to distinguish colors is native to the mind, but the conception of them as a unity is developed in consciousness by discrimination.

LAW III.—DISCRIMINATION IS THE STARTING-POINT IN EVERY MENTAL GROWTH.

First Proof.—All the different forms of conscious activity originate in the stimulus of the senses, and are referred to them and self-consciousness. It follows that all these forms, perceptions of blue, loud, sweet, conceptions of truth, justice, virtue, and the different forms of feeling and desire, must begin with discrimination, the same as the first activity of mind.

Second Proof.—We shall find the Law sustained if we consider any individual case of development. To perceive a horse as an object, it must be distinguished from other objects; to perceive it as an animal, its parts must be distinguished; to distinguish it as a horse, its size, shape, and proportions must be distinguished. The same kind of discrimination is necessary in other things.

Third Proof.—The historical development of thought shows this to be the true order. Take the following illustrations as examples. (1) The true nature of government has been slowly developed in the intelligence of men as different acts have been compared together. (2) Laws have grown up and taken fixed forms only after the most painstaking discrimination of all the similar cases that can arise having a common principle. (3) The natural order of thought has been from the analysis of philosophy to the synthesis of science. (4) Abstract and general notions are made clear only when different concrete and particular examples are distinguished. For instance, the abstract idea of justice could not be formed without first having in mind different just acts, and seeking by discrimination the common element that makes them just. (5) The subjects treated of in a rudimentary book of instruction must be such as can be most easily distinguished from each other. More advanced works carry the division of topics discussed into fields of discrimination that are more difficult.

Observations on the Last Two Laws.

(I.) Plato says, "The beginning is half." No part of an undertaking is ever more important than its beginning. The principle involved in the last two Laws is fundamental to the question of a right beginning in mental development. Its importance has long been recognized in philosophy, and its connection with education has been more or less clearly seen, though the full consequence of recognizing its fundamental character has not received the attention it deserves. In philosophy the question has been long discussed whether general or particular notions come first into the mind, whether synthesis or analysis is first in mental activity. The logical necessity for a class, in order to identify an individual or distinguish it by comparison, was seen by the earliest philosophers, and many suppositions have been made to account for the origin of class ideas. In its educational bearings the principle is involved in such questions as the following: Shall we teach by definition and rule, proceeding from them to an explanation of examples, or shall we begin with examples and go from them to the rules? Shall we begin with the unity and proceed to the elements by analysis, or shall we begin with the elements and build up the unity by synthesis? Shall we follow the order of induction wholly, or of deduction wholly, or shall we begin with one and change to the other? John Stuart Mill holds that all sciences tend to change from the inductive method to the deductive, and some educators think this order should be followed in teaching the sciences. The proper place for taking up these questions fully is under the Laws of Unification, and they will be considered there; but the principle under discussion here has an important bearing on them, and should be considered with them fully in view.

(II.) The principle is stated by Prof. Bain in this form: "Mind starts from discrimination." It has been shown here that this principle is true, not only of mind in the beginning of its career of activity, but equally of every class of activities. The principle is easily apprehended, and points with unerring finger to the proper beginning of every effort of the teacher. He should hold up objects, ideas, thoughts, for discrimination. This is first. But, secondly, it directs him to the class of things to be presented. They must be such as the mind is prepared to discriminate from its native constitution or by development. If there is no basis of unity in the mind, there can be no discrimination.

(III.) The mind is prepared to discriminate some notions from its native constitution, when they are properly presented. Such are the notions of qualities immediately perceived by the senses. Other notions require that a basis of unification should be laid before the proper discrimination can begin. The truth of a statement is often lost because the mind is not prepared to make a proper comparison of the subject and predicate. A teacher should know his pupils, a lawyer his jury, a public speaker his audience, in order that they may know both what may be left unsaid and what will be understood when it is said. When a teacher has furnished himself with a sufficient variety of things to be discriminated, and has studied his pupils till he is prepared to select such things as are adapted to the unifying powers of individuals, he will doubtless be ready to believe the beginning more than half.

From these Laws we may infer the two following rules:

RULE 1.—*Present differences for discrimination.*

RULE 2.—*Select differences adapted to the unifying powers of those who are to be instructed.*

(IV.) It is clear from these Laws that whatever the faculty exercised, there is but one method of developing activity, and that is to stimulate discrimination. In the case of perceptions, the illustrations given are sufficient proof. If we reflect a moment on the memory, we shall see that only those facts are recalled which are discriminated from each other, and from the mass of facts treasured unconsciously in the mind. The same principle is carried through the entire range of faculties, and illustrations may easily be multiplied.

(V.) The distinctions whose value has not been recognized is the mine of undeveloped intellectual wealth from which future stores of useful knowledge must be gathered. By working this mine, and by this means alone, have the discoveries, the inventions, and the sciences of civilization been promoted. The colors of the rainbow were set in the sky with the beginning of terrestrial phenomena, but the full meaning of the distinctions of color was not seen till Newton began to inquire into the meaning of the same distinctions in the colors of thin plates, soap-bubbles, and so forth. That the distinctions meant the same in the several cases where found seemed probable, and the search for a common cause led to the prism and the science of Optics; and it has finally led to a theoretical basis for the unification of light, heat, electricity, and so forth, as modes of motion. The value of the expansive force of steam was long unrecognized, although this expansiveness was daily forced upon men's observation. The early inquiries into the causes of electricity revealed the fact that it is of different kinds, but how different, and with what possible differences of application to useful purposes, no one suspected. Ocean telegraphy greatly enlarged the field of its usefulness, but a more careful observation of the differences implied in induced currents is opening an entirely new field in which this usefulness may be multiplied. It may seem strange that no one had cared accurately to test the power of steam till Watt gave attention to it, but it is a wonder repeated with every new discovery and invention. The so-called secrets of nature have too long been supposed to be like the fabled fire hidden away in the seams of flint, only to be revealed by some superhuman intelligence. They are not hidden. They are open to all who have the high purpose, the patience, and the wisdom to study out their meaning. When Aristotle was upbraided by Alexander for publishing the secrets of his philosophy to the whole world instead of keeping them for the exclusive advantage of a favored few, his answer was, "They are published, but not published." He had done what he could to publish them, but the world could not understand. If any one supposes the secrets of electricity were hidden away till Franklin explored its dark recesses, the next gleam of lightning or crash of thunder should dispel the delusion. It did not behave differently from its nature to arouse the attention of men because they failed to understand it. It made no difference to it that men for so long a time only saw, wondered, and trembled. As electricity is indifferent to the discovery of its characteristics, so are all the secrets of nature. They are plain enough for those who will observe them, and are not far to seek.

(VI.) The knowledge of differences is not useful if it stops with distinctions. It is necessary to combine, but construction requires discrimination first. This foundation for combination should be well laid. It has been found that nothing else contributes to good results in the sciences so much as accuracy of discrimination. Mathematical computations, made from observations of the stars, laid the foundations of Astronomy. The use of the balance and the yard-stick have built up Chemistry and Physics into sciences. To the value of this principle of accurate distinctions is due whatever of good has come from teaching by definition and rule. This method requires accurate discriminations, and any method that does this is better than any other method that fails of it. A third rule for discrimination follows:

RULE 3.—*Require accuracy of discrimination.*

LAW IV.—ACTIVE MENTAL ENERGY IS PROPORTIONED TO VARIETY AND CLEARNESS OF DISCRIMINATIONS.

First Proof.—It is easier to maintain interest in a topic by presenting variety and contrast than in a subject that admits of no such relief; but there is greater exhaustion in proportion to the greater interest. This shows a greater expenditure of mental energy and greater activity. Whatever facts appear inconsistent with this statement may be easily explained on other principles.

Second Proof.—The resistance which the mind naturally offers to the consideration of a new head, as we listen to a discourse or read a book, when several have already been considered, is an indication that it is more difficult to enter upon a new line of thought than to follow the old one, and therefore greater activity is stimulated.

OBSERVATIONS.

(I). Children are endowed with abundant energy, and require a greater variety of topics than older persons. If the teacher does not furnish this variety to keep them busy, they will be likely to hunt up a variety of exercises for themselves, regardless of the trouble they may cause others. Skill in adapting a subject to the disposition and capacity of a child, and in presenting variety, will generally find ways to keep him busy at some useful work.

(II.) The power of clear discrimination comes with experience, and as the activity depends upon clearness as well as upon variety, the character of the distinctions made should be adapted to the child's capacity. It is useless to present a distinction unless it is felt. Sometimes it will require a moment's attention, and this is hard to keep with children except by moving forward. They are averse to any requirement to stop and think. But if a distinction is necessary to be made, it should be sought by one means or another till obtained.

(III.) In seeking variety for children it should not be forgotten that the senses are their chief means of discrimination. Objects that appeal to the senses, and language that recalls experience, should be studiously employed.

(IV.) It must not be supposed that much good is done by furnishing variety for discrimination if that is the end of the activity. It is of but little worth unless good use is made of it intellectually. But discrimination is activity, and it is the first step from dullness toward mental life and growth.

Law V.—When Discrimination Ceases, Activity Ceases.

First Proof.—This Law follows as the converse of the preceding Law. The greater the discriminations, the greater the activity; the fewer the discriminations, the less the activity; no discrimination, no activity.

Second Proof.—When consciousness is so low that distinctions of sense and thought are dim, the mind rests; when no distinctions are made, there is sleep or unconsciousness.

Third Proof.—Any monotonous sound, not unpleasant or so peculiar as to force its distinctions on the mind, the pattering of rain, the rippling of a brook, the swashing of waves upon the beach, draws the attention gently from other objects, and when its monotonous distinctions wear themselves out, the listener falls asleep.

Observations.

(I.) Provision for rest and recreation is as necessary, sometimes, as provision for stimulating activity, and it is quite as difficult to devise. The Law gives light in one direction. In cases of sickness, when the body needs all the energy it can have, the particulars of the day, the details of daily routine, rambling talk, the constant sight of visitors coming and going, or other movements in the room are alike troublesome and an obstruction to speedy recovery. To hold up to the imagination a vast, unvaried plain, to look upon the illimitable sea, the expanse of the sky with only its repetition of star after star, and then to follow the picture with unvarying mood on and on toward the infinite, is to lose the mind in boundless space, to be followed by forgetfulness of self. In this way the sea and the mountain unite the influence of their care-dispelling uniformity and vastness to their invigorating breezes, and bring rest and strength to the wearied and exhausted.

(II.) The imagination often discovers distinctions where none exist in reality. This is a fruitful source of erroneous judgments and harmful actions. Reports and inferences should be brought to the test of facts more frequently than is the wont of injured feelings, for there is nothing like reality to dispel excitement that is without justification from the truth.

(III.) The actions of children are often too severely censured by the teacher, because the actions seem to imply distinctions which the children have not really made. The teacher may develop these distinctions in the mind of a child, but should not presume the existence of an evil motive unless there is the best evidence that it has been called into action.

CHAPTER V.

UNIFICATION.

IT has already been shown that, to be possible and permanent, discrimination requires a pre-existent preparation and subsequent growth. The mind must possess a basis of unity before it can discriminate, and discrimination must develop a consciousness of this unity as containing the differences noted, or the result will be but a passing sensation.

2. We speak of knowledge as being assimilated, as being incorporated into the mind, and we use other figures which represent some of the relations of knowledge to the mind, but they do not set forth the facts completely, and they are liable to be so applied as to mislead. We do not know the ultimate nature of an act of knowledge, and all speculations in regard to it seem idle. If we limit it to the formation and differentiation of nerve-cells, what, then, is consciousness? If we conceive of the mind as stamped with the images of objects, what interprets the relations of these images to each other? The objects are only seen to exist by themselves, and their likeness or unlikeness to each other is an interpretation of the mind, not a part of either the objects or their images. If we adopt the Platonic theory that the mind is originally possessed of real knowledge which is called up in memory by experience, what is it but a guess in default of other explanation, and a guess that would only

remove the difficulty back to a previous existence? All we can do is to press our investigation to a rational understanding of the facts we may discover.

3. In two directions, we seem already to have come to the limit of inquiry.

First.—There must be an underlying basis of unity in the mind for comparison to make discrimination possible.

Secondly.—There must be an active consciousness distinguishing differences.

It remains to discuss here the activity that follows discrimination; the activity that is necessary to permanency of impressions and growth. This may be set forth as an ultimate principle limiting investigation in a third direction, and stated as follows:

Thirdly.—There must be developed a consciousness of the unity on which comparison depends as embracing the distinctions made. This is Unification.

4. Knowledge is not gained by accretion, as stones are laid together in a pile. It is a growth. The elements are held together by an organizing power of the mind that will not let them be removed one by one, but by a power which allows disintegration only by a process of building newer forms to take the place of the old. The world has long known the rainbow as a beautiful arch of seven colors. Now we conceive of it as pure light, separated into seven dissimilar elements by the prismatic power of rain-drops. The ancients only gazed with wonder on its penciled beauty; now we can scarcely look upon the bow in the cloud without mingling with admiration of its beauty a sense of awe at the wisdom that is able to weave those seven rays together into the soft light that lights the world; that can spread them out again upon the cloud, upon the sea, upon the sky, upon the grass, and upon the rose at will. The first notion of the bow is a unification

of it under the notion of color, the second a unification of it as the activity of molecular forces.

5. The forms developed in the mind by unification, and here called unities, may be distinguished from the categories of the metaphysician and from the unit of the mathematician.

6. A unit is a whole, conceived of in its relations to other things; a unity is a whole, conceived of as made up of parts or elements. An individual object is conceived of as a unit or as a unity, according as we contemplate its use or its parts and plan. Thus, a locomotive furnishes the motive power and is a unit when considered as a part of a train, but it is a unity when considered in itself. Things are units when entering into our understanding of other things, unities when understood by themselves.

7. Categories are the classes that would result if all notions were so arranged that no notion could be affirmed of any possible object of thought that would not fall under one of the classes named, and be excluded from all the rest. The characteristic of categories is, that together they comprehend all predicates, and separately exclude each other. Thus, if quality and quantity are two categories, any notion that could be classed as a quality could not be classed as a quantity; any notion that could be classed as a quantity could not be classed as a quality; and any notion that could not be classed as either, must belong to some other category. The idea of the category is definite and distinct, but no classification has ever been made that is generally acceptable, as at the same time exhaustive and exclusive of each other.

8. The unity differs from the category in two respects. First, under the category a notion is predicated as belonging to a particular subject; in the unity, a notion is predi-

cated as containing the subject. In the one case, not only the notion predicated, but other notions under the same category, may belong to the same subject; but in the other case, the notions that belong to a unity are contradictory of each other, and when a particular subject is identified under a particular unity, the affirmation excludes the subject from all other notions belonging to the same unity. Thus, if we say the sky is blue, we may think of blue as belonging to the sky, or of the sky as belonging to the class of blue things. To think of the quality, blue, as belonging to the sky, determines nothing with respect to other qualities, but to comprehend the sky under the notion blue is to exclude it from all other notions of color.

9. In the second place, the categories are exclusive of each other, while different unities may embrace the same elements. Thus, blue belongs both to the unity color and to molecular motion. In speaking of the rainbow above, reference was made to the fact that its colors are classified, not only with reference to each other as colors, but also with reference to molecular action. This new classification unifies color with other forms of molecular activity, as heat and electricity. Although blue, heat, and electricity do not admit of comparison with each other under the unity of color, they may be compared under the unity of molecular activity, and their differences may be told with mathematical exactness.

10. That conscious activity naturally develops in the direction of unity, rather than the category, will be manifest by a little consideration. The proposition, The sky is blue, may seem to predicate blue as belonging to the sky, but it is only because the sense of sight has been so accustomed to distinguishing colors that the work of selecting blue and identifying the sky with that concep-

tion is unconsciously done. The term sky is not co-extensive with the term blue, but the term blue includes all that is included in the term sky with respect to color. That is, blue is the general term in the proposition. Take the proposition, Cæsar was an orator, a soldier, and a statesman. It may seem at first that all the mental activity expressed here is confined to calling up the historical character of Cæsar, and applying a name to each prominent element as it comes into mind. But before we could know that Cæsar was an orator, we must have elaborated the term orator in our minds, so as to identify the particular character of Cæsar with this general notion. Perhaps we compared him with Cicero, or Antony, and other orators or soldiers, before we decided whether his ability in public speaking was worthy to rank him with the orators. It is easy to repeat the proposition, Cæsar was an orator, while losing sight of such comparisons, but they are implied as belonging to the original development of the conception. Thus, the elaboration of predicates as including the subject with respect to some unity is natural, but the classification of predicates under categories is formal and artificial.

11. The unities or bases of unification may be divided into two general classes, sensuous and rational. The discrimination of sense-percepts is based upon unities traceable to sensation, while the discrimination of other faculties, even of memory, is based upon unities developed after the senses have completed their work. The unification of memory, which we call association, is very general, and yet it is held that some tie of relationship must bind things together, or they could not be held together in memory. Of the two classes named, the sensuous are much the more simple, yet it would be difficult to give a complete list even of these unities. Let us begin with the

lowest sense, the sense of touch. Take an orange in the hand, and consider how many things may be learned about it from this sense alone. It is round, large, rough, cold, heavy, hard, elastic, and so forth. The first affirmation distinguishes it from all other forms, the second from all other sizes, the third from all other surfaces. Thus, we may go through with all the predicates. To say it is round involves the perception of it as a solid; but this involves the notions of space, extension, direction, surface. All of these are involved in the perception of the orange as round. These notions again are made the basis of other distinctions, and thus each gives us a new unity for discrimination. Thus, we might go on, and find unity within unity without limit in the one class of perceptions by the sense of touch. By the other senses unities are elaborated in the same way.

12. If now we proceed to the unities of the other faculties, we shall find them increasing more rapidly. In memory the orange is associated with a thousand friendly gatherings, with ten thousand faces, with countless experiences of life. Fancy has played with it, and imagination has built a cottage by the orange grove, has plucked the delicious fruit, and lived pleasurable years with friends in the soft climate and amidst the verdant scenes of a perpetual spring within the orange belt. The orange has given its name to one of the colors of the rainbow. As a unit it has figured in the mathematics of children, and to its culture and sale men have devoted the thoughts and energies of a life-time. In each of these various ways the orange makes a part of a unity of thought, and it is likely to be unified in other ways that could not now be imagined. Other notions form parts of other unities in a similar way, and to trace them all would be impossible. The mind may go on in the natural development of itself

by the development of notions of unities into clear acts of consciousness without limit. There is no end to this growth.

13. That which here concerns us is to see from the illustration above that conceptions of unities are developed gradually. For a child to discriminate an object with reference to a particular unity, he must have that unity developed to some extent in its parts. It is not at all probable that even the first discrimination of infancy is made until the senses have been repeatedly affected by things similar to each other, and yet different, so as to involve both variety and unity. The very nature of consciousness requires this order of development.

14. Unities grow in complexity as the mind develops. The sensuous unities are grounded in the nature of the senses, and they come into consciousness without effort when the attention is attracted by differences. In developing ideas of these unities, little more is necessary than to direct attention to differences through the senses. But in the development of rational unities the direction of a child's thoughts should be watched with the greatest care, and the mind should be kept active by proper stimulation until the unification is made. The same subject is capable of comparison in so many ways, and some unities are so much more difficult than others, that it will require great and protracted effort, sometimes, to maintain activity of mental energy and prevent an easier unification than the one desired. We are conscious of this in the working of our own minds. We are continually falling below our ideal standard of achievement. We see an end worthy of the concentration of all our energies, but content ourselves with some easier and lower aim.

15. Not all unities are of equal value. Most of them are of little worth; some, like criminal thoughts, it is bet-

ter never to elaborate in mind. It would not be worth while to paint all the landscapes of earth were it possible. It would not be profitable for one to read the biographies of every man and woman, were they written, and were life lengthened out for the purpose. There are some common-place thoughts and acts, filling up the allotment of life of even the wisest of men, insomuch that it has become a proverb that no man is a hero to his valet. Many nations of the earth flourish and pass away without making an impression on civilization important enough to detain the student a moment with profit. Much of the history even of central nations is of no value save to fill up the picture. But there are some central nations, some central characters, some central events in history, the knowledge of which will repay all the cost of its acquisition.

16. What is true in history is true in science, literature, art, and business. No expenditure of labor or time should be counted too great in seeking this masterful knowledge. The history of civilization is the history of these important results that are mile-stones, marking the progress of the race. They are unified results in material, intellectual, and moral improvement. The elements that enter into them to make them what they are, can be understood only as they are studied in relation to the unities as wholes; that is, as completed results. It is the one great object of the school to develop these unities in the consciousness of each successive generation. The race is moving forward along certain lines of progress, and a right education will place men at a point of observation from which they will see these movements in their true light. These points of observation are the central points toward which intelligence has grown in the development of thought, and from which the mind must take a new departure in the struggle after further progress.

17. The construction and use of the farmer's tools, the weaver's loom, the manufacturer's engine, the mechanic's lathe, the methods of using electricity, the principles of law, of banking and government, have all attained a certain degree of completeness, each in itself, which gives them the first claim upon the attention of every individual that is to follow any one of these various pursuits.

18. But there are broader, deeper unities than these, unities that include them. In the midst of the heated discussions that arise concerning the comparative value of different courses of study, it ought to give us confidence in the substantial value of scholastic instruction to consider that certain forms of intellectual development, such as a knowledge of number, geometrical forms, the construction of the sentence, and rhetorical expression, the relations of physical cause and effect, the fundamental moral principles, and rules of conduct have uniformly been made the elementary basis of teaching in all ages and countries. The study of the principles of number, the study of language, the study of harmony in music and verse, and the study of conduct will continue as long as children shall be born uneducated. When one is tempted to break off from a prescribed course of culture, let him beware what he omits, for there are standards of intellectual power as fixed as the standards of money, of measure, or of physical force.

19. The differences between pupils lie deeper than we think. The parent or teacher is humiliated and put to confusion because he so often fails to bring a child to see a truth, or look upon a course of conduct in the same light with himself. A child does not learn to spell. Why can not one child associate the letters of a word together the same as another? A child does not comprehend the principles of number. What is the reason he can not see

the relations of number as clearly as his teacher? Why is it that some children can not be made to see the bearing which truthfulness, honesty, and fidelity have upon the character and course of life? Why is it that the criminal, during all the years of his incarceration, seldom turns his thoughts from the study of a life of dishonesty to that conduct that tends to usefulness and honor? The end to be gained in all these cases is a unity of attainment for which there has been no foundation laid in the mind. Sometimes the defect is constitutional, sometimes it is a defect of training. Whatever the difficulty, a beginning must be made at the lowest round of the ladder where aspirations have their first stimulus, and nothing can be more important than to know the laws in accordance with which a basis of unification is laid.

LAW I.—THE POWER OF UNIFICATION IS PRESUPPOSED BY DISCRIMINATION AS ITS PSYCHICAL BASIS, BUT UNIFICATION IN CONSCIOUSNESS FOLLOWS DISCRIMINATION IN THE ORDER OF DEVELOPMENT.

Proof.—It has been shown under Discrimination that this is the relation of the two activities in the beginning of mental development; it remains to show that the law is general.

(1.) What is the conception of the unit one, and how is it developed? It may be thought that this is a unified conception, if any thing can be properly called such. But the mind must apprehend this before it can reason at all on the relations of number. A moment's reflection will show that there are no differences in the unit one to unify. It is itself a discrimination under the general conception of number. It is the limit of numerical analysis. Of these two conceptions, the unit and number, the idea of the unit precedes all other definite conceptions of number by a comparatively long time. The child will respond to the request for a marble or a toy with promptness, and time after time without variation, long before it can be taught to pick out two or three marbles.

(2.) From the constitution of the mind, blue is a discrimination of color, and all such discriminations have been shown to precede the development of the idea of the unity color; such unities need no further consideration. But many unities depend upon a choice of elements, and are artificial or factitious, and the law should also apply to them, if it is general. That in such cases the development of a unity as containing differences must follow discrimination is apparent from the very statement, for it is built up in the mind out of the elements already there. But can there not be a conception of a unity without any consciousness of its differences? or, when the unification follows discrimination, is it necessary to suppose the unity to exist in the mind in any sense before the discriminations are made that develop it in consciousness? For an answer to the first question take the conception of a circle as an illustration. This conception may be said to exist in a manner without the distinctions of circumference, diameter, and radius; but, so long as this is so, it exists as a discrimination only, as one of the forms of perception in space, amongst which it is distinguished the same as blue is distinguished as a quality. It is not distinct in its true mathematical character until it is conceived of through the discriminations by which the whole is made up out of its parts. Then only does it become a unity. Such conceptions are first discriminated from other things, and then distinctly brought out into consciousness by themselves by a discrimination of their own parts.

In answer to the second question, whether a factitious unity must be thought to exist in any sense before it is developed by discrimination of the elements that constitute it, take as an illustration the conception of a machine. A machine is, of all things, most factitious or artificial. The development of a conception of it can be clearly traced in the process of invention. Let us attempt to follow this process. The first step is to discover something to be done. The second step is to entertain the suggestion that this may be done by a machine. The next step is to develop this indefinite suggestion into definite form, parts, and proportions. The inventor begins with an indefinite notion of the machine he wants, but he selects material, and forms the parts of his machine under the control of a definite purpose as a unifying thought, until his plan is fully developed, and the machine perfected according to the original purpose. Every step is in accordance with a developing plan, and the beginning of the plan, however crude it may be, must have been in the mind before the development could begin. The work of the inventor stops with his plan, and a large proportion of inventors fail to reap the reward due to their inventions because they do not add to their inventive power the skill of the workman. For instance, the inventor of a well-known knitting-machine slowly worked out his plan, but exhausted all his means in trying to produce a working model without securing results that came up to his expectations. After he had given up the enterprise, a skillful mechanic happened to see the machine, and, after examining it, offered to put in capital enough to make another test on condition of having a controlling interest in the invention. The confidence that induced the offer was based on the fact that he found no defect in the plan, while there was great defectiveness in the workmanship. The inventor's plan is his unity and it grows out of itself, and is not put together in a mechanical way, and thus it happens that the inventor himself may be a good judge of the perfection of his plan, and a poor judge of mechanical execution. A child studying inventive drawing may happen to put lines together that will make a beautiful "design," but this result is not likely to occur, and even when it does, skill in drawing lines is cultivated rather than invention. Children should always be urged to have a purpose in whatever they do.

The process of the inventor's mind is the process of thought in the development of all factitious unities, as well as the process by which natural or organic unities are developed in consciousness.

Observations.

(I.) In the preceding chapter the importance of discrimination was dwelt upon as the beginning of mental development. Now we have come to a Law that shows it to be equally important to direct discrimination to those unities for which the mind is prepared. Thought moves along a continuous path, like the electric fluid, and when the mind is required to skip a step, or to attempt a step it can not take, the connection is broken. One step at a time, quicker or more slowly, according to its difficulty, and each step in its own order, is an inexorable rule.

(II.) Of natural unities some, as color, sound, body, form, depend upon unification through the senses. These are called sense-perceptions. Other natural unities depend upon internal perception or self-consciousness. Conceptions of the powers and activities of the mind, of the feelings and of the will, are of the latter class. Conceptions of the first class are developed by the exercise of the senses; of the second class by reflection. Some of these perceptions are immediate, that is, there is no known activity between the intellectual apprehension and the sensation; mental perception and sensation seem to be two sides of one activity. But other perceptions are vicarious, or substituted. A solid is directly perceived by the sense of touch, and indirectly by the eye. But the rapidity and versatility of the eye make it easier, and apparently more natural, to use sight than touch in perceiving solidity. Most of the perceptions of the eye are of this class, and it is mainly in consequence of its power to take the place of the other senses that it is superior to them. The ear is next to the eye in the same power. The conception is doubtless first developed by an immediate perception, but the vicarious use of the eye and ear become most common in practice and are often most exact. But it must be observed they are never free from possible error in such exercises, as may be seen in the spectroscope, in ventriloquism, and so forth.

(III.) The natural unities developed by reflection are developed later than those developed by the senses, and they are difficult in proportion as they are removed from sensation, and in proportion to their complexity. Children differ from each other in ability to form clear notions of these unities, and some seem never to become able to grasp common forms. An idea is taken as a unit, not as a unity; that is, it is discriminated from other things, but its own constituent parts are not discriminated. This seems to be the case with those who are correct in the use of language, and yet find the science of it difficult; or those who can do any kind of business better than they can explain the method of doing it. An illustration in point is the well-remembered case of a student who learned the definitions and the demonstrations of the first book of Geometry by heart, without being able to see the application of a single statement to the truth of the conclusions drawn. It was the same after several careful reviews, and she never became able to make an independent Geometrical statement of the simplest kind, although she was not regarded as deficient in mental power generally. It must be seen that for a person to study Geometry without the power of unifying the facts is a waste of time. But how much better is it for pupils to be taught Arithmetic by rule, and only required to believe that given processes will produce given results, while they are not taught to see that the result is a unity composed of elements whose relations to each other are represented by the processes of the work? From the beginning the teacher should regard the result as a unity, undeveloped in the pupil's mind, and his aim should be to secure the development of the unity by discrimination. One source of error and confusion is the neglect to distinguish the kinds of elements related: a number of men, days, or acres of land is only a number; the value is numerical and no more.

(IV.) What has been said about natural unities is applicable, in the main, to factitious unities. These constitute the main features of a business man's thoughts and the conventionalities of society. In addition to what has been said of other unities, the following should be said of these:

(1.) They depend upon a clear development of the natural unities. They are based on natural unities such as should be taught in the schools, and are but an application of these unities and the discriminations made under them to the concerns of life. These natural unities are the material out of which is built the structure of a business character. No repentance is brought to the teacher's attention more frequently than such a one as this. A boy has learned enough of a few things to see some value in a certain line of business. He leaves school to grow up into a business man. At the end of two or three years he finds he has not advanced in his business prospects. When he looks for the reason he finds he has exhausted all the intellectual capital he began with in securing a little skill in a small tread-mill of petty business activity, the circle of which he can not enlarge. He returns to his teacher, only to confess his regrets at the mistake, and his greatest sorrow is that it is too late to correct it.

(2.) The factitious unity in its inception is a generalization, as we saw it in the invention of a machine. It is derived by previous discriminations made under some larger unity, as the machine was one of many kinds of machines. The preparation required for the study of such a unity is two-fold. First, it must be distinguished from the elements associated with it in the larger unity, and secondly, the mind must be prepared to discriminate the component elements of the unity to be understood. For instance, if one is to take up the study of Mechanics, he should first distinguish it from the other sciences to which it stands related, and then he should have the mathematical training required to understand the facts found in the subject itself.

(3.) Factitious unities of value, measure, weight, and the like, are beyond the comprehension of the young, and their minds must have time to develop before any successful appeal can be made to their understandings by figures representing such unities. We read that a child cried because he could not have the sun to hold in his hands, but he was satisfied when an orange was given him. The one represented to him no more than the other. Children's toys and presents should be estimated for their adaptation to secure rudimentary development, not for their money value.

(4.) When instruction is over the heads of children, as we say, the fault may be either of two things: the instructor may not make some of the intermediate steps clear, and thus the connection of thought will be broken; or he may leave a topic completely unified but without any purpose in it to lead the mind forward, and thus interest will be sacrificed and attention lost.

(V.) It is generally better, at least during the period of school life, to arrange the unities for development with reference to regular stages of progress. There is first an elementary treatment, and then one more exhaustive. If the present law is correct the method should be the same for both classes of treatment. It is only by developing a unity that distinctions can be made. The difference in the classes of treatment should be in the discriminations. Suppose the subject be Astronomy. This may be descriptive, as it is for aiding the navigator, or it may be the science of Astronomy. These two forms of the subject have different ends, and therefore constitute different unities rather than different stages of the same unity. If it is to be studied as a science, an elementary treatise should take the science as its unity, the same as an advanced work, but confine its discriminations to those differences that are most prominent and most easily seen. After this the outline may be elaborated in detail by a complete treatise. Below the elementary grade of the science may be given descriptive Astronomy, which takes up the phenomena of the stars from a different point of view. The end should be considered from the beginning and the means adapted to that, but the method should be the same in all cases. In the same way history may be studied as biography, as a description of events, or as an account of the development of nations and the principles of national policy and civilization.

We may see the Law illustrated in teaching reading. A graded series of Readers does not change the method of teaching the subject, from the first number to the last. The first is only more simple than the last, and as one element after another is mastered, it is passed over more lightly. Two breaks are sometimes made before reading proper begins; one in passing from letters to words, the other in passing from words to sentences. It may be a question whether we should take the sentence before teaching the alphabet, and develop the word out of the sentence and the letter out of the word; or take the word first, and develop the letter out of the word, and then pass to the sentence; or take the letter as the first unity, then the word, and then the sentence. Any one of these three systems may be adopted and followed consistently. The choice must depend largely upon the result of experience. In any case the method is that of developing a unity, and it is only a question of the best one with which to begin.

(VI.) The preparation and grading of text-books in most subjects has gone on with little reference to the relation which ought to exist between an elementary treatise and an advanced work. To select such points of a subject as will give a complete view in outline, and present these points in a manner to be clearly understood, is a task of the greatest difficulty. A few works in history have attained pre-eminence in this regard. Xenophon's Anabasis, Cæsar's Commentaries, and the first chapter of Macaulay's History of England may be named as examples. As a person approaching a mountain first sees it as a mass, then notes its general outlines, and then observes its rocks, trees, and ravines, having a clear vision at each stage of approach, so the child should be brought into the presence of the subjects of human thought. There need be no fear of presenting too great thoughts. It is not their greatness, but the multitude of indistinguishable details that staggers a child. Children take hold of the greatest problems early in life; it is only a mastery of such subjects by extensive acquaintance with subsidiary elements that waits for growth.

(VII.) Amongst the factitious unities mention ought to be made of language. Whether language is called artificial or natural, it is only vicarious, and expresses truth; it is not truth itself. The word represents an idea, the sentence a thought. Like other vicarious unities coming through the eye and ear, in consequence of its convenience it is more used and more useful than the immediate presentation of facts to the senses. But it is second and depends upon previous use of the senses for its development. There must first be something real in consciousness for which language may stand or it will mean nothing. The experience of the senses gives us no discrimination and no unification. These must come through the activity of mind, and the instrument the mind uses in thinking is language. Without the production of this convenient instrumentality no intellect, so far as is known, has ever made any considerable progress. The education of Laura Bridgman, with only the sense of touch left her for use, is conclusive proof on this point. As the account is given in Dickens's American Notes, she is represented as able to be taught only to imitate, much as a dog would learn to perform tricks, until eight years of age. Mental development began to reveal itself only at this time, when she learned to put together raised letters that spell the words book, key, and so forth. "But now the truth began to flash upon her: her intellect began to work: she perceived that here was a way by which she could herself make up a sign of any thing that was in her own mind, and show it to another mind: and at once her countenance lighted up with a human expression; it was no longer a dog, or a parrot. I could almost fix upon the moment," says her benefactor, "when this truth dawned upon her mind, and spread its light to her countenance." Language fixes the unities of thought and enables us to hold them easily, while the attention is rapidly turned from point to point, and a variety of discriminations are brought into distinct consciousness in quick succession, based upon the unity suggested by the language used. No application of labor-saving machinery can compare with the advantage which language gives to mental energy. And no other monument of a nation's genius or achievement can compare with the language it originates, develops, and constructs. It follows from this that ideas and thoughts should be clothed in their proper forms of expression as early as possible in the development of mental activity.

Law II.—The Natural Tendency of Mental Energy When Excited to Activity is Toward Unification.

First Proof.—Every time a child asks What is this? Why is it so? What is it for? he attempts to identify a new difference with a past experience; and until such questions are asked, stupidity reigns.

Second Proof.—The different faculties of the mind manifest themselves only in unifying. Were there no unifying tendency, there would be no proof of any thing beyond reflex action. Memory links together all the experiences of life in such perfect unity that no event can be recalled that does not suggest others associated with it, and thus life is made a unit. The imagination builds unities out of the products of perception, memory, and reason; and without the manifestation of unification there is no manifestation of imagination. Reason is developed only in the unities of thought, the subject and predicate being identified with each other.

Third Proof.—The senses can only furnish the mind with activities corresponding to separate states of being. The mind itself must relate these as materials of thought, and unless it seeks relations by its native energy, there is no way of explaining its constructive power.

Observations.

(I.) The stimulus to mental activity is difference for discrimination, but the mind must be left to unify of itself. An object presented to the senses excites discrimination, but it does not excite unification. If the mind is possessed of something with which it can identify a new discrimination, it does it naturally if given time; if the proper basis of unification does not exist, no identification can be forced upon it. The activity will go into some worthless generalization. Food may be selected for the nourishment of the body, but the condition of the body will determine what and how much shall be assimilated. In the same way the condition of the mind determines what and how much mental food shall be used.

(II.) Time must be given for unifying thought. The body requires hours to digest and assimilate food; identification in mental activity is assimilation of mental nourishment, and it is a slower process than discrimination. Solitary study, where a pupil knows he must depend upon himself, is a most wholesome occupation for a large proportion of a pupil's time. Indeed, it is a great part of a teacher's duty to lead the pupil to study. In an autobiography of Daniel Webster, the opinion is expressed that riding the circuits over the New England hills was conducive to a habit of reflection that more than made up for the time taken by slow modes of travel. It was while fishing in the Mashpee river, he tells us, that he constructed his Bunker Hill Monument speech. If two boys study together, the brighter one will get more help than he gives. A wise man will learn more in a conversation with an ignorant one than the ignorant one from him. These are matters of common observation, and their truth depends upon the fact that it requires more time and better preparation for the duller and the more ignorant to assimilate truth than they can command.

LAW III.—UNIFICATION CONSERVES MENTAL ENERGY.

First Proof.—Under discrimination it was shown that mind does not develop, or grow without unification. All the activity that stops with observing differences is lost so far as permanent growth of mind is concerned.

Second Proof.—In the exercise of memory only those perceptions help to furnish the mind that are so associated together as to be recalled by each other. In the same way imagination and reason must make consistent unities to develop imagining and reasoning power. The faculties of the mind grow in proportion as their activity is organic.

Third Proof.—The growth of thought through time has been by the development of unities. Civilization, government, the arts and sciences, are all permanent through the development of a conscious unification of differences discovered by experience.

OBSERVATIONS.

(I.) The unity should be held before the mind as the leading thought when discriminations are made, that identifications may be more easy, and the differences conserved by a higher unity instead of leaving them to burden the memory by the laws of association alone. The names of objects and classes of objects should be made thoroughly familiar as early as possible, as representatives of unities; and general statements that need to be proved, such as the propositions of Geometry, if they can be understood by themselves, should be learned before the demonstration is studied, that discrimination may be brought under the proper unity from the first.

(II.) Criticism that ends with the destruction of that which is criticised is without value. A critic may compel a better construction by destructive criticism; but the good is indirectly done, unless criticism leads to comparisons of a more correct character, and thus directs the unifying powers. The critic who indulges in destructive criticism mainly, fails to develop in himself a broad and strong intellect. Construction should succeed destruction, and supply the antecedent reason for it. We take down and remove that we may have a place for a new and better structure.

CHAPTER VI.

CORRELATION AND DEGRADATION.

THE **term correlation** as used here is borrowed from its use in physics. When the blacksmith's hammer comes down upon a piece of iron, the motion of the hammer is arrested and heat is produced. The muscular force of the arm imparts motion to the hammer, and the hammer produces heat. Heat is not produced till the motion of the hammer ceases, and the motion is not produced till the muscular energy is expended. So long as the energy is inactive, it is called latent; when active, it is called kinetic. It is held that the same amount of kinetic muscular energy will produce the same amount of motion, and the same amount of motion will produce the same amount of heat. That is, muscular energy, motion, and heat are considered to be equivalents. In the same way other forms of physical force have their equivalents in each other. It is held in physics that whenever one form of physical force ceases to exist, its equivalent is produced in some other form, and that the physical forces generally succeed each other in conformity to this law of force-equivalents. The same principle may be found in mental energy, with laws analogous to the laws of physical forces.

2. But the absolute correlation is only theoretical. The muscular energy can not all be changed to motion. Some of it will be lost in heat. The part which is thus lost, is said to be degraded in form.

Law I.—One Form of Kinetic Mental Energy has its Equivalent in Other Forms.

First Proof.—This must follow from the third Law of Native Activity. If mental energy may be so directed as to cease acting in one form and made to act in some other form, correlation must be inferred.

Second Proof.—The illustrations of the Law are as clearly demonstrative in mental energy as in physical force. Take perception and memory. So long as energy is concentrated upon perception, memory is inactive. In observing facts or listening to an address, some of the energy must be directed to storing away our thoughts in memory or they will soon slip from us. The effort of retention being the same, memory will be strong in proportion to the vividness of perception, the activity of perception contributing to the retentive power. If we compare any intellectual act, as perception or reasoning, with emotion, we shall find that so long as the attention is confined to the intellectual act emotion remains latent. But when perception or reasoning becomes easy, the energy of intellectual activity diminishes and the consciousness of beauty or other feeling is excited. Those who criticise art intellectually are in danger of losing the pleasurable sense of beauty; those who do not lay the foundations of their enjoyment of art in an intellectual discrimination can not appreciate it in a high sense.

Observations.

(I.) As a rider arouses activity in his steed to be used in leaping a hedge by running him on level ground, so the mind is carried over difficult trains of thought by an accumulation of force excited by easier exercises. Thought stimulates thought. Reading a book that is vigorously written, talking with a person of mental force, reviewing one's own work that has aroused activity before, are ways of preparing the mind to undertake a difficult task. One story suggests another as much by exciting thought as from any resemblance between the stories.

(II.) When the mind works successfully in a certain direction there is much economy in carrying forward the work to its conclusion. The adage, "Strike while the iron is hot," is applicable here. Fire in the furnace that must use a large amount of heat before the ore begins to melt is never allowed to go out. A person may expend fifty pounds of force a hundred times in vain in trying to raise a weight of sixty pounds. A few more pounds of force added to the fifty would have given success the first time. The mind is like Virgil's Rumor,—it gains strength by moving. When the mind begins to flag, a little diversion, an illustration, even something entirely foreign to the subject under consideration may be a spur to thought.

(III.) It is possible to explain the increase of power in the above cases partly by the increased circulation of blood in the brain caused by thinking. But there is still another cause independent of this. According to the fourth Law of Discrimination, when the mind is active there is much material at hand, many discriminations fresh in the mind, some of which may be used to help forward the effort to build up thought.

Law II.—Mental Activity is Along the Line of Least Resistance.

Proof.—Could we arrange the mental activities in the order of difficulty, we should find that an energy excited in the direction of a more difficult activity tends to the less difficult form. Two illustrations will, perhaps, be sufficient to show this. First, let us take the act of memory, or the ingraining of thought into the very constitution of the mind. This is supposed to be more exhaustive of mental energy than any other activity. But there is no other mental process to which we apply the will so directly. It requires a direct effort in addition to the stimulus of perception, reasoning, reflection, and so forth to commit things to memory. In the second place, consider the acts of induction and deduction. There must be induction before deduction is possible. Of the two, induction requires a higher tension of mental energy than deduction, because a larger number of discriminations must be held in mind. But the universal tendency is for the mind to satisfy itself with the smallest amount of inductive evidence possible, and apply the deductive activity to the drawing of immediate conclusions. The truth of this statement may be seen fully proved in the fact that the deductive sciences, like Mathematics, were brought to comparative perfection early in the history of systematic thought; while the inductive sciences, like Chemistry, are of recent appearance.

Observation.

It has been shown that discrimination is required to stimulate and direct mental activity. But there must be a disposition to give attention to discriminations, or the unification that is required to give them developing effect will not follow. The legitimate regulator of the attention is what we call the exercise of the will. By this, and by this alone is the mind held to do its highest work. The things that can only be accomplished by sheer force of will give the mind the highest development of which it is capable.

When we accomplish something by a determined effort we derive most satisfaction from it, and feel it gives us our highest power. The direction of the will is point-blank toward its object, and as activities not under its control may be diverted to some other end, they will be so diverted when the more difficult processes of thought are reached. At this crisis the mind should be held by a set purpose and compelled to move forward, or it will fall below its highest possibilities.

Law III.—The Line of Least Resistance tends toward Degradation and Dissipation.

First Proof.—It was seen, in discussing the General Law of mental development, that mental activity which ends with differences without unification, and mental activity which unifies without preserving differences, alike fail to secure mental growth. Activities that tend in these directions, therefore, waste the energy excited and tend toward dissipation. That there is a range of activities below consciousness, out of which consciousness grows and into which it fades away, is evident from many considerations. As Sir William Hamilton has made it appear by his illustration of the division of the smallest visible object, each part being invisible alone, but the two parts visible when taken together, the senses give perception only by a combination of a multitude of impressions which are individually below consciousness. A single leaf on a distant tree, the sound of a single drop of water on the beach, are imperceptible, but the sound of the waves and the sight of the trees are composed of such imperceptible elements. The Law that consciousness develops from the indistinct to the distinct needs only to be carried back far enough, to find a beginning of consciousness in unconscious activity. That it requires an effort to develop indistinct activities into clearness, and that unless they are thus developed they will be lost, is proof of the tendency to dissipation.

Second Proof.—It has been shown that consciousness ends in indistinctness or undiscriminating activity. That this is the natural tendency of conscious activity we may infer from the fact that this tendency is manifested wherever we trace its development.

(1.) The discriminations of perception pass rapidly from the memory, and require repeated renewals to keep them in control of the will.

(2.) The tendency of thought is to lose sight of distinctions, and content the mind with generalizations. These generalizations become less and less distinct until the mind contains no clear picture. It is the natural progress of the sentence—and the progress of the sentence is the progress of thought—to wrap up the distinct, the particular, subject in the more general predicate. The mind is so apt to lose sight of all the distinctions included in the predicate that it comes to fix the attention only upon that part of it with which it identifies the subject, and is sometimes left in doubt, as we saw when treating of unification, whether the subject is classified under the predicate or the predicate is made to be a part of the subject.

(3.) It is the tendency of resolution to degenerate into desire, of rational emotion to degenerate into passion, and of the intellectual powers generally to degenerate into indistinct consciousness. Even pain is dissipated if allowed to find vent in the natural expression of tears, but if the natural activity is restrained by the will, the pain is intensified until, perhaps, it breaks over all bounds and finds expression in sobs. The voluntary effort required to store thought in memory, to carry an argument to a conclusion, and to execute a desire or purpose, is put forth to counteract the natural tendency to dissipation. A state of mind with conscious distinctions not unified is an unstable state, and can not continue. It must identify either by unifying the variety, or by losing the consciousness of variety in a generalization that does not contain the differences.

Observations.

(I.) That the force locked up in a piece of coal will be dissipated if burned under the open sky, that the force brought into activity when water falls over a precipice will be changed into heat and dissipated in space when the motion is arrested, that force applied to machinery is partly turned into heat and dissipated by friction, are familiar facts in physical science. In the use of force to accomplish physical changes the greatest ingenuity is exercised to prevent this waste by degeneration. In the development of mental energy there is the same tendency to degradation and dissipation, but there is little effort made to discover the avenues that lead to this loss. No rule ought to be applied with more critical care than the rule to follow the order of nature. The order of nature in the sun is to dissipate its heat, the order of nature on the earth is to bring all things to a dead level, to exhaust the stores of heat laid away, and to dissipate the heat produced, so that it requires the immeasurable reservoir of the sun's light and heat to maintain the conditions required for life for the briefest time. The rule named is just in the sense in which it was intended, but it can not be applied indiscriminately without error. Only in the exercise of a single faculty is there any considerable effort made to guard against loss by degeneration and dissipation. It is found necessary to make a direct effort to store the memory and make it retentive. But even this effort is subject to much criticism, and every device is sought to avoid making a direct effort to memorize. Efforts to develop the more complex faculties rest satisfied with being directed toward the stimulation of activity, and little or no thought is given to the question of what becomes of it when produced.

(II.) To discover the methods by which dissipation may be prevented, we must know what forms of activity are most subject to it, and what direction of activity is toward degradation. These points will be taken up under the treatment of the various mental powers. Only the general Law of conservation will be treated of in this chapter.

LAW IV.—UNIFICATION OF DIFFERENCES IS CONSERVATION OF MENTAL ENERGY.

First Proof.—Unification has been shown to be necessary to development, but it must be a unification that preserves differences. The tendency to dissipation by unifying without preserving distinctions, is checked when the differences are held in the mind, and when the energy excited is used in fixing variety of forms of thought. The mind possesses power in proportion as it is able to bring a large number of activities to the understanding of truth.

Second Proof.—In making and holding discriminations clearly in mind under the forms of unities, the various powers of mind are exercised and developed, and the energy thus called into action results in the development of permanent strength.

Observations.

(I.) The importance of carrying through a purpose or an undertaking will be seen from this Law. The more perfectly discriminations are cemented together, the stronger the hold which the mind has on them.

(II.) Thorough classification is important for the conservation of energy. In this way differences are most firmly held together in the unities of thought, and the very fact of classification gives prominence to characteristic differences.

(III.) In this Law is seen the importance of clear analysis. It has been noted as a fact that the strong men of broad intellects prominent in history have been educated by methods that lead to the clearest and most careful analysis of thought. The development of a new thought into the clear apprehension of men has led to many a revolution in government, in warfare, in business, or in individual character. The United States government was founded upon a new idea. New ideas have determined the result of many of the decisive battles of the world. In the clear analysis of thought that brings out new views of truth lies the teacher's source of power. As has been said, he that discriminates well, teaches well. This is true both in respect to the development and to the conservation of power.

(IV.) The complete assimilation of discriminations in a unity is the culminating process of development. Analysis that is not followed by synthesis does not increase mental power. The two processes must go together. The habit of turning the attention from differences to unity, and from unity to differences until the whole is seen in all its parts, perfects the work of development. The practical difficulty to be overcome is that of holding complex unities with sufficient clearness to comprehend the relations of all the parts to the whole. In Arithmetic, for example, the elements that enter in to make up the answer required are set forth in the question; but if the conditions are complex, it is difficult for an untrained mind to hold them in consciousness so as to see their relation to the unity required. A repetition of processes till each step becomes almost automatic, is needed for completely comprehending such lines of reasoning. As a rule, the briefer and more distinct the representations of the elements and their relations, the easier the process of reasoning becomes. A fitting word, a technical term, or a sign is a great aid. A diagram that sets forth the essential unity of a sentence and the relations of all the parts at the same time, is a device of great value in Grammar when rightly used. If the real thought is first put into the diagram, the analyzed form will be more easily comprehended in this than in any other way.

As an illustration of the advantage of brevity, take the rule for dividing a fraction by a fraction. It may be stated in any one of three forms: 1. Multiply the numerator of the dividend by the denominator of the divisor for a new numerator, and the denominator of the dividend by the numerator of the divisor for a new denominator. 2. Invert the divisor and multiply. 3. Multiply the reciprocal of the divisor by the numerical dividend. In the first form the rule is perfectly plain, and yet it is difficult to keep every element distinctly in mind so as to comprehend the rule in one unity of thought. The second form of the rule presents every relation presented by the first form, and so briefly that it can easily be held in mind as a whole. But in the second form there is nothing to point out the course of thought. In the third form the reasoning process is clearly indicated in the briefest way, and if we distinguish between a numerical dividend and a concrete fraction, the reasoning will apply equally well to a concrete and to an abstract number.

LAW V.—THE TENDENCY TO DEGRADATION AND DISSIPATION IS INCREASED BY INDULGENCE.

Proof.—To prove this Law, it is only necessary to refer to the growth of habits. If one acquires a habit of carelessness about keeping his promises or carrying out his resolutions, the energy of his thought, distinctly manifest in the promise or resolution, is dissipated; and the more frequently this occurs the harder it is to keep a promise or a resolution. The same weakening effect of habitual dissipation is manifest in every form of mental energy.

OBSERVATION.

It should not be necessary to urge any thing to enforce the importance of this Law. The basis on which the young are cautioned against the indulgence of evil habits, and most of them belong to one form of dissipation or another, is as strong as any physical law. The need is to realize the certainty of the Law and the innumerable ways in which it finds application.

CHAPTER VII.

SEQUENCE.

THE forms of mental activity succeed one another in a fixed order. We saw this illustrated in studying the different mental faculties. There must be perception before there can be memory, and there must be memory before there can be comparison. When a teacher observes the order in which a child's mind naturally develops in understanding, and presents truth in accordance with this order, he is said to follow the order of nature, not because nature presents truth in this order, but because the mind can develop only in this order. The different forms of truth are presented in an order corresponding to the order in which different forms of mental activity develop. From the infinite diversity of forms in which creative wisdom is manifested in nature, the mind selects only those that are adapted to its condition and stage of development. The teacher follows nature when he adapts himself to this necessity. To know the order in which truth must be presented, the mind must be studied and the laws of the succession of its activities observed.

Law I.—The Faculties of the Mind are Developed and Come to Maturity in the Order of their Dependence One Upon Another.

First Proof.—So constant and regular is the order of development, that the educational period may easily be divided into distinct stages. Rosenkranz has divided it into the intuitive, the imaginative, and the logical period. Other divisions will easily suggest themselves to the mind, but all of them will follow the order in which we have seen the faculties to be dependent one upon another.

Second Proof.—In order to arrive at clear reasoning, or the exercise of the higher faculties, the mind must pass through the forms of perception, memory, and so forth, but the lower faculties may be used without carrying out the process of reasoning. In fact, but few of the activities begun in the mind of a child are carried through to their final stage, from which it happens that the lower faculties are most used and are first developed to the full extent of their power.

Observations.

(I.) This Law is important in helping to determine the order in which subjects should be taught, and the method of their presentation. Subjects requiring observation and the use of the senses should come first, and the study of all subjects in every period of growth should begin with these. Memory should be both developed and stored in childhood. The ability to hold things accurately before the mind is essential to clear reasoning and should early be cultivated. Amongst the feelings the moral sense is early developed, and the will may be trained by encouraging the habit of doing things.

(II.) All the faculties begin early, and it requires but a slight development of perception and memory to provide material for a large use of the higher faculties. The reason may begin to work with a few things, and the number of possible combinations increases so rapidly that the mind might stop very early in the exercise of the acquisitive faculty, and spend all its strength in making different combinations of the same few facts. With two facts two combinations can be made if we discriminate the order in which the facts stand related to each other. Three facts will give six combinations, four facts twenty-four, and ten facts nearly four million. This is only the simplest method of comparison, and we may easily see that it is not for the want of material that reasoning is developed so late. Sometimes there is a precocious tendency to develop the higher faculties before the lower have been much exercised, and it always ends in raising hopes of greatness only to be disappointed. The law requiring diversity for general strength of mind is inexorable.

LAW II.—IF SEVERAL FACULTIES MUST BE USED TO COMPLETE THE UNIFICATION OF A GIVEN THOUGHT, THEY ARE CALLED INTO EXERCISE IN THE ORDER OF THEIR DEPENDENCE.

First Proof.—That this is true in cases where the faculties are exercised on new material for thought follows from the fact of dependence. If one of the faculties to be used is perception, no activity that depends upon this can be excited without it. The same may be said of memory and of the other faculties in order

Second Proof.—The same order must also be followed in making new combinations of old material. Any course of reasoning is obscure that does not call up to the mind with clearness all the processes of thought involved in the argument; and because listeners will not take the trouble to trace statements to their foundations, their thoughts are obscure or erroneous. Take a demonstration in Geometry, for instance. It is useless to talk about the relations of lines and angles to one another unless the mind first holds them clearly before itself.

Observations.

(I.) This Law may be applied in the use of every subject of instruction. *First*, take the subject of Reading. If a reader simply tries to present the words on the printed page in clear tones, it will be unpleasant and difficult to follow him. He must use the printed words to gain the thought of the author and then give this thought as though it were his own. Inflection, emphasis, and so forth are elements in the expression of thought which can not be left for the listener to supply.

Secondly.—The study of Geography develops ideas of space by concrete forms. But the tendency is to stop with what is on the map, and not bring into real consciousness the very things that are represented. Direction is an elementary idea, and the four cardinal points ought to be so impressed that one will always be conscious of them in traveling, and able to refer every thing to them whenever a map is studied. But school and dwelling-houses are often placed without reference to the points of the compass, and children grow up without the habit of referring to standard directions. By fixing the points of the compass of a small and familiar piece of ground, and having it drawn on paper with objects accurately located, and drilling pupils with these before them till the whole plot is indelibly stamped on the mind, much may be done to lay a foundation for accurate thinking in the location of places.

Thirdly.—The study of Arithmetic is easy for the comparatively young. The relations of number all represent the relations of things as they may be conceived; hence, the subject may be studied from concrete illustrations. The abstract concept, to be clear, must always be developed by the particular example. But if the child does nothing but put numbers together and divide them, very little clear knowledge of the principles of number is gained. The thought should go back easily to the examples from which the notions of the principles were first evolved. If figures represent not only a definite number, but definite objects, it is as important to keep the objects definitely in mind as the number of them. If a figure represents a ratio, as rate *per cent*, it is as important to know what objects have this ratio to each other as to know the ratio. The first thing to be made clear is the group of objects that are to be compared together. It is so easy for the teacher to connect object and number in the same concept that he takes it for granted the child will make the connection, and he allows the child to talk about the numbers without reference to the objects they ought to represent, when they actually stand in the mind only for the figures in the book or on the board. This neglect to require clear conceptions of the things that are related together is the occasion of more uncertainty and stumbling than any other fault in teaching this subject. Perception, recollection, and imagination should be called into exercise quite as much as the reasoning faculty.

Fourthly.—This Law of Sequence should be observed in the study of language. The use of language is learned by imitation, but, to have it mean any thing, it must be associated with objects and actions. The natural order is the conception of a thing first, and then its representative word. But we should also remember the Law that consciousness develops from the obscure to the clear by degrees, and need not always wait for the complete concept of an object before giving its name. It is most natural for the mind to unify its discriminations in connection with a representative term, and the important thing to be insisted on is, that the term and object should be associated together in the concept. One rule for the study of Grammar must suffice for this point. *Let the facts of language underlie every definition and rule, and every step in parsing and analysis.*

Fifthly.—In the study of History, personal character, personal adventures, and action in general appeal to the imagination and excite the mind to activity more easily than a description of countries, laws, and customs. Biographical sketches and historical anecdotes should prepare the way for a more connected history of any people. In order to make the philosophical study of history profitable to any considerable extent, a student should first have the mind well stored with facts as data for the exercise of the reason. A philosophical theory is an excellent guide, but is worth nothing without a knowledge of facts to be explained.

Sixthly.—In the study of nature, things should precede theory and science. It is of little use to take up the science of Botany or of Zoölogy if there has not been previous observation of plants and animals.

(II.) If a statement or demonstration is not understood, it is not sufficient to explain the elements that are found to be obscure. These must be made clear and then unified in the statement or demonstration. It is one of the most common mistakes for a teacher to suppose the look of intelligence that comes over a pupil's face when some incidental explanation is made, is an indication that the whole object of the explanation is understood. The elements should be made clear, and then the whole by means of them. It is not the easiest way to learn the road from A to B to pass back from B to A, although all the objects between may be observed, for they are seen from the wrong point of view. Much less can the mind be instructed to follow a course of thought or argument by being led back from the end to the beginning, for the way is all darkness till the beginning is reached.

Law III.—The Mind Develops from the Simple to the Complex.

First Proof.—A complex thought requires several activities in connection, and the mind may have power to hold a few discriminations together in unity when it can not hold a large number of them in consciousness at the same time.

Second Proof.—When we have repeatedly unified the elements of a complex thought it becomes easier, and finally takes its place in the mind as a fixed unity.

Third Proof.—By cultivating the power of attention, the mind gains strength to hold together a greater variety of differences for unification.

Observations.

(I.) In considering this subject it must not be supposed that the absolutely simple is to be made the basis of unification. By the simple is meant that which is simple to the understanding,—that which is easily grasped as a whole. The elements of an ideal analysis are not the elements to begin with. A child never learns to talk by first learning to make what we call the elementary sounds. It tries to pronounce words as a whole.

(II.) There is great difference in the power of different men to hold clearly the elements of a complex thought. Some persons are able to seize the conclusion of an argument without being able to go over it step by step, while others not only see the conclusion, but the process by which it is reached. The ability of the first class of persons must be recognized. The value of their practical judgment in the world's affairs is great, especially in times of great emergency. But it is an endowment not to be cultivated directly. It is a power to discover true unities without spending energy in the effort to make exhaustive discriminations. Most persons are able to give the reasons for their conclusions if they are worth any thing, and the Law of growth by discrimination and unification requires that the judgment should be based on an appreciation of the elements of thought.

(III.) The difference in the ability of children is more marked in reference to the power of advancing in complex thought than in their understanding of simple truths. Dull pupils should be taken over the complex slowly and with much repetition.

Law IV.—The Order of Development is the Same in Individuals, in Nations, and in the Race.

First Proof.—The progressive use of the mental faculties made by nations and the race indicates an advancement corresponding to the order of dependence in the individual. The organs of sense seem capable of little progressive development, but it is probable that finer distinctions of sound and color are made now than in the childhood of the race, as a child's powers of perception may be cultivated. Music and painting were cultivated by the ancients, but it is almost certain that they were coarser than in modern times, as the war-songs and the war-paint of the savage are more rude than Italian art. The imagination is given freer play in early than in later development. Song and story belong to childhood and early history. There is also a correspondence in the development of complex reasoning. Take, for instance, the growth of civilization in Greece. The Greeks as a people passed through an intuitive, an imaginative, and a philosophical stage, and came to the very confines of a scientific era. They did all that could be done with science treated deductively. What is further to be noted is that they went through these stages in the order named, which is the order of dependence, the observed order in the development of childhood, and the order of progress in the race. When Greece declined, the genius of the race made one more effort under Roman civilization, and added to its acquisitions the triumph of law, the basis of science as well as order, and then slept, awaiting patiently a general awakening, till the night of the Dark Ages passed away. The tastes of childhood are the tastes of infant nations, and the morals of childhood are the morals of antiquity. The child's submission to authority corresponds to imperial government in the beginnings of national life, and the self-control of manhood, with the domination of a rational will, finds its counterpart in the civilized governments of modern times.

Second Proof.—There are some reasons in the nature of things for the Law given. In the case of a child there is the dependence of one form of activity upon another which determines the order of development. In the development of the race and of national life we may see something of the same dependence. When America was first discovered by Europeans, the world was not prepared to take advantage of the discovery, and soon lost all knowledge of the discoverers and their achievement. But when Columbus came to this country, men were sufficiently enlightened to appreciate the value of the discovery, and the skill of men was sufficiently developed to enable them to make the attempts at colonization successful. If Columbus had not succeeded, the world was ripe for the enterprise, and the Western continent would not have remained long unknown. This is shown by the fact that shortly after the discovery a vessel engaged in trade on a different course was driven by the winds to South America, and the officers had the intelligence, skill, and equipment to return to their home where a report of their adventures would soon have brought others to the newly-discovered continent. The Copernican Theory of the Solar System did not originate with Copernicus, but it was suggested by Pythagoras nearly two thousand years before Copernicus was born. But there was not sufficient advancement in knowledge to prove the theory, and it was disregarded. We may see a substantial reason for the development of the deductive method of argument before the inductive. Induction is more difficult than deduction, because it requires us to hold in mind a larger number of particulars at the same time for comparison, and men took the easier course by deduction until they were compelled to seek for a more satisfactory method of discovery. These illustrations are sufficient to show a dependence in the order of development in nations and in the race as a whole, and the comparisons of the First Proof show that the order is the same as in the individual.

Observations.

(I.) In the study of history we ought to remember that it is as unjust to apply to the earliest races of men and to nations in their infancy the same standards as are now applied to civilized nations, as it is to apply the standard of a man's conduct to that of a boy.

(II.) We may find much in the history of civilization to aid in the discovery of the order and methods of individual development. This principle applies to the development of the feelings and the will, the same as to the cognitions; and in the education of children it is highly useful to study the early forms of civilization, and follow this order of nature both in the sequence of truths imparted, and in methods of instruction.

(III.) While the order and successive stages of progress are fixed in nature, it is not necessary for each individual and each generation to make the same experiments and failures. If it were so, there could be no progress. Each generation gives to its successor the results of its experience, the grounds of its beliefs, and the methods of its successes. These results can be made useful in lightening the work of one generation after another, and will make shorter paths to the same ends without changing the order of thought and activity. It is not necessary for any generation to make the mistakes of its predecessor.

CHAPTER VIII.

ATTENTION.

T**HE first command** in every military drill is, Company, attention. It is given first, and it emphasizes every subsequent command. The same command, sometimes an imperative duty, sometimes a silent persuasion, sometimes a fear or hope, precedes every evolution of thought. Rosenkranz says in his Pedagogics, "The conception of attention is the most important to Pedagogics of all those derived from Psychology." Dr. Carpenter in his Mental Physiology says, "The acquirement of this power, which is within the reach of every one, should be the primary object of all mental discipline." Tate says in his Philosophy of Education, "So much depends upon the faculty of attention that its outlines should form a leading subject of practical education." Sir Isaac Newton attributes his success in scientific discovery to the power of prolonged attention. Others call attention the essential element in genius. Such expressions show the importance attached to the power of attention. In this respect there is no difference of opinion. But when we ask what attention is, the answers are various. Without attempting, however, to discuss the different answers given, let us examine the act itself, and try to gain a view of it that may be made the foundation for a truthful and consistent treatment of its place in the process of mental development. All are agreed that it involves the concentration of active mental energy. We say of one whose mind is divided amongst several subjects that he does not give attention to any one of them. But we also say of a listless child that he does not give attention. It is not necessary to know whether his mind is on something besides the subject presented or not; if he does not actively consider this subject he is not attending to it. To be attentive the mind must be active. But is activity attention, or only a condition of attention? We can not turn activities upon a subject unless there are activities. These must be stimulated first, to secure attention, whether the word is used to designate the activities, or only to denote a concentration of them upon one object.

2. A speaker has the attention of his audience when he has aroused their interest, and they think only of what he is saying. Is this called attention solely because a good degree of activity is aroused, or is it because we know that, in addition to this, every hearer must have many distracting suggestions come into the mind, which are all put aside to listen to the speaker? One activity may be so great as to absorb all the energy we possess and leave other activities without support. This is called involuntary or non-voluntary attention. But in this sense the word can scarcely be distinguished from discrimination and unification, and it has been treated of sufficiently, though not by name, under the Laws of these two subjects and of native energy.

3. But there is another form of attention, distinct from this. According to the principle of correlation activities stimulated in different directions may be turned in other directions and thus concentrated upon one object. It is this power of directing or concentrating stimulated energy that needs separate treatment. It is the concen-

tration of the activities of the mind by the power of the will.

4. The first Law of sequence places the development of voluntary attention after cognition and feeling. There must first be a cognition, this must excite a feeling, and the feeling produce a desire, which leads to a voluntary turning of the energies of the mind upon the object first exciting the activity of cognition. This increases the activities as they are again excited in their order, and they are again and again excited until the mind is clear in its understanding, and has done all it desires to do with the thought conceived. The teacher will see from this that, to gain attention, the intellectual powers must be appealed to by something that will excite thought. The emotions may be appealed to, and all the mental energy may be spent on them as non-voluntary attention without exciting the cognitions to any considerable extent; but if the self-directing energy of the mind is to be stirred, some form of interesting thought must be presented.

5. The teacher will further see, that, if he would economize his resources, he must avail himself of opportunities to gain the attention when he will have least to oppose in the form of other distracting things. The time when a class is most ready to give its attention is at the beginning of a recitation. The teacher should be prepared to seize upon this most favorable moment, and fix the attention at once upon some thought worthy to occupy the time, and then follow this by another and another, and not let the attention wander till the recitation is finished. When the attention flags from weariness, more of the emotional element in the way of something pleasing may be resorted to, care being always exercised not to lead the mind too far away from the subject. Sometimes it may be necessary to call back the attention from wander-

ing by something very striking, even if it is not connected with the lesson, until the minds of all are brought into a condition subject to the teacher's will.

6. Sir William Hamilton illustrates his conception of attention by comparing it to a telescope, the parts of which are drawn to focusing distance from each other, and the telescope is turned to any particular point to be observed. First, one point in a field is thus examined, then another, and so on, until the whole field has been thoroughly explored. Recalling this illustration of the telescope, attention may be defined as the act of focusing the mind on a limited field of vision until every part is distinctly seen in its true relations to the whole field. Psychologically distinguished from abstraction, attention is its complement. By abstraction the mental energy is checked in its flow in a given direction, and by attention the energies are continued in activity and turned unitedly in the direction determined upon by the mind.

LAW I.—ATTENTION ACCOMPANIES THE ACTIVITY OF EMOTION.

First Proof.—The experiences of life in proof of this Law are too common to need more than a reference. A painful sensation at once unites all the energies of the mind upon the task of finding out the cause of pain or the means of relieving it. The effect begins in a reflex action, but there springs up immediately an intense and prolonged voluntary effort to distinguish the cause and find relief. Pleasurable sensations act in a similar manner to prolong the cause of pleasure.

Second Proof.—Sensations of pleasure and pain, by being prolonged in consciousness, have the double effect of holding the attention on one object and of accumulating energy by the re-enforcement of new impulses. The attention is not only more constant but it is more intense; the mind is more energetic when we take pleasure in listening to an address than when the feelings are indifferent. The reader or speaker who has a pleasant voice, a commanding presence, and graceful manners, keeps the attention much more easily than one who has not these advantages, and an ordinary listener will receive greater benefit from such a speaker because it is easier to follow him with attention.

Observations.

(I.) Prof. Bain says, "All the great teachers from Socrates downwards, seem to recognize the necessity of putting the learner into a state of pain to begin with; a fact that we are by no means to exult over, although we may have to admit the stern truth that is in it." This places pain as the first and lowest means used to arouse and fix the attention. The growth of infant consciousness teaches the same truth. The first breath is drawn with an infant cry, and many are the evidences of pain before the first manifestation of pleasure. The first appearance of distinct recognition a child shows is a manifestation of wonder, a feeling allied to pain rather than pleasure in its origin. As pain is the lowest stimulus to be used, other stimuli take its place as the mind develops; but so also, as the will degenerates and becomes degraded by indulging the passions, pain again is the last resort. It is the resort when all other stimuli have lost their effect. Let it be accepted, then, that pain is a legitimate stimulus of attention to compel the energies of the mind to turn toward a particular truth; but it is not to be used when other means are equally effective to secure the result.

(II.) The stimulus of pleasure accompanies every healthy activity of mind or body. It is a stimulus that is always present with successful effort. The following is a common experience. A boy has been studying Algebra for a year but says he does not like it, and never did. An examination shows he does not understand the subject. Under more favorable circumstances he is induced to try the study again, and as he begins to master some of its principles he becomes interested, and redoubles his energy. Liking for the subject and an understanding of it advance with equal pace.

(III.) The pleasure and pain which nature has coupled with exercise and conduct are the most wholesome stimuli to be found. The natural consequences of failure are the sense of disgrace and the loss of the advantages hoped for from success. The teacher should make failure apparent without discouraging the pupil. The natural effects consequent upon learning, are, 1st, the pleasure of exercising the mind in the contemplation of truth, and 2d, the use made of the knowledge acquired. The first, or the pleasure of knowing, is developed in the highest degree when the consciousness of knowledge is most intense, and this is when a pupil puts his knowledge in a form for others. A recitation so made that a person ignorant of the truth presented should be caused to understand it, is an exercise of the mind affording this pleasure. The teacher should in this way make success as well as failure apparent. But the pleasure that comes from the use of knowledge, either in acquiring other knowledge or in bringing something to pass, should also be sought. The mind is stimulated in a given direction by a consciousness of its power to act in that direction more perhaps than by any other one thing. The power to use knowledge gives this consciousness.

If pleasure and pain, other than those which naturally follow conduct, are to be employed, they should be conformed to the order of nature as far as possible, but adapted to the intelligence of the child rather than the absolute character of the conduct. Sometimes the immediate consequence of conduct is pleasurable and the remote consequences painful, or the reverse. Before the child can appreciate remote consequences it may be necessary to employ other motives than natural consequences to regulate conduct. Sometimes an extra motive of pleasure, like sweet-meats, may be judiciously set before a child, and sometimes a teacher should interfere between conduct and its natural consequences to prevent painful effects. If a child has disobeyed and played in the water he should not be allowed to remain in damp clothing and take cold because this is the natural consequence of his conduct. Sometimes authority, or even physical force should be used to prevent conduct that would in the end bring pain too late to be effective in preventing evils that are permanent. A child five years old once begged his mother for something to eat which she assured him would be harmful. After a good deal of resistance the child was indulged, and allowed to learn the lesson of experience. When suffering from the effects of the indulgence he was reminded of the previous warning, but he completely turned the moral of the lesson by telling his mother that she was older than he, and knew what the consequences of the indulgence would be, and ought not to have indulged him. By this he showed that the firm exercise of authority in such a case would have met the approval of his highest nature, however much it might have crossed his immediate will.

(IV.) Curiosity, or the desire to know, is so important as to deserve a separate consideration.

(1.) It is in its origin and nature quite distinct from the element of pleasure connected with the activity of knowledge. It precedes the activity, and is entirely out of proportion to any sensation of pleasure that may be expected. The progress of knowledge is from the lower faculties to the higher, and curiosity is a feeling of dissatisfaction with the exercise of the lower faculties, and a struggling of the mind to organize the lower activities under the higher. The mind is not content with the unities of perception, and seeks the higher unities of reason. Curiosity is formulated in such questions as why? what? how? which ask for a cause. It is strong in children, though volatile, and has always been a chief reliance in seeking to secure the concentration of their attention and the effort to learn. A rule universally given is, "First, rouse the curiosity of children." Prof. Bain says, "Every teacher knows, or should know, the little arts of giving a touch of wonder and mystery to a fact before giving the explanation."

(2.) Curiosity may become too great, it may be idle, it may be misdirected. It is too great when it leads to the expenditure of prolonged effort on inquiries that can not be answered. It is idle when it degenerates into a mere love of excitement. The mind is too indolent to respond to the stimulus presented for the exercise of the higher faculties, and satisfies itself with repeated exercises of the lower faculties, and makes no progress in development. It is misguided and marks an ill-balanced mind, when it is expended on trivial or corrupting thoughts that do not return valuable knowledge in proportion to the energy put forth.

(3.) Curiosity is naturally a lazy habit of mind, as is shown by a disposition to ask information from others rather than to study it out, by being often satisfied with the semblance of knowledge rather than to search for the truth, and by manifestations of indifference to the things learned when information has been given.

(4.) The methods of treating inquisitiveness are various, even opposed to each other, but if the above statements are true we have a basis on which to build. We should settle it first of all that curiosity is an important element in a child's character that may be used for good purposes. To refuse to recognize it, to manifest impatience toward it, to seek to eliminate it, is unjust, injurious, and cruel. On the other hand the natural tendency to indolence and degeneracy may be increased by answering all the questions asked in the easiest and most direct way. This saves the necessity for activity on the part of the questioner. It should be the rule to use the curiosity of children to lead them on to find out things for themselves. A little girl of a sweet temper had excited the interest of her little friends in some of her profound observations, and when told one day that one of her playmates wanted her to tell her about the things she knew, she said, "I can not talk to her; why does she not think them out for herself? this is the way I had to do." Children should be led in every way to think out things for themselves. By means of curiosity we may arouse and direct the attention, and the truth should then be presented in such a way as to maintain interest till the higher faculties have been fully called into activity.

(5.) There are other means of exciting the attention through the feelings besides those dwelt upon above, chief amongst which are hope and fear. Fear may direct attention, and by the exercise of the will excite activity; but it is paralyzing in its general effects, as will be seen when this emotion is considered in itself, and should not be used except to prevent action or stimulate the will directly. But hope is a vitalizing stimulus and may always be safely employed. When every other human blessing had escaped, one by one, from Epimetheus's casket, Pandora closed the lid and held hope for mortal comfort still. When no other motive for exertion can be found we may stimulate the most indifferent by hope.

(V.) It is evident that pleasure is designed to be the most universal incentive to attention. But the pleasure that comes from knowledge is sometimes late in coming, and other stimuli must be resorted to in order to induce the first efforts of learning. Tate divides inattentive boys into five classes. For the intellectually feeble he would use patience in adapting work to their capacity. To the sluggish temperament he would apply powerful stimulants, and vary them until he should hit upon one that proved effective. The volatile boy he would study until he found some one thing more pleasing than other things, and cultivate the attention by the use of this stimulus until a habit of attention should be formed. The timid boy he would seek to encourage and persuade. To the quick boy, who grasps a point with ease and then turns his thoughts away from the lesson in hand, he would give the difficult questions and all the work he could do. He would thus stimulate differently different classes of minds.

Law II.—Attention is Stimulated by Rational Motives.

First Proof.—A rational motive excites a desire to gain a certain end, and this desire directs the energies of the mind to the means of obtaining the desired purpose.

Second Proof.—The legitimate tendency of a rational motive is to maintain a concentration of mental energy until the purpose is obtained.

Observations.

(I.) The feelings act upon the attention in two ways. They are activities that may be easily turned in the direction of a desired object of thought, and they act upon the will to concentrate the energy aroused. But rational motives act only on the will. The pleasure a child takes in listening to a story arouses that kind of activity that may be used in understanding the story, and the will has little difficulty in directing the energy excited even if it comes into play at all. But such a desire as that to know the multiplication table must create the activity by voluntary effort. The rational desire of learning a language does not develop any of those activities by which a language is learned. To talk about the advantages of knowledge may act as a stimulus to the will, but it does not excite the discriminations and unifications required to know. To the desire for knowledge must be added the means appropriate for exciting those activities that constitute knowledge. To appeal continually to motives for study and right conduct without directing the study or enforcing the conduct, is what is called preaching in school, and is to be avoided. Almost all pupils like good order, but to secure it requires a method and the enforcement of a system. If good order is maintained, the desire for order may be relied upon to secure individual co-operation; but if it is not maintained, however much the necessity for it may be urged, no one will heed the admonitions given. It requires less energy to keep good order, if a teacher has a fairly good method and maintains it with decision, than is wasted on the disorder of a poorly governed school.

(II.) Rational motives are permanent in their influence, and increase in effectiveness by use and time. Themistocles, almost first among the ancient Greeks, was an idle and dissipated boy. After the battle of Marathon he was so changed as to excite the wonder of all who knew him, and when asked for the cause of this strangely-sudden reformation he replied, "The trophy of Miltiades does not suffer me to sleep or be quiet."

Law III.—The Development of the Power of Attention is Directly as the Strength of Rational Motive, and Inversely as the Degree of Feeling Habitually Exercised.

First Proof.—Since attention is an exercise of the will on which motives act directly, the power of attention grows as motives increase in their power over the will. But the feelings require less voluntary effort in directing the attention, and as we become accustomed to follow these without the exercise of the rational will, we lose power to control attention.

Second Proof.—Experience shows that a person who has the habit of setting himself to do certain things in view of rational motives, strengthens his power of concentration of energy in that direction, while the person who acts from feeling loses his power of self-control.

Third Proof.—Extreme pain, joy, or excitement prevents distinct thought even to the extent of exhausting the mind of all the energy of which it is capable. Sir William Hamilton lays it down as a law that perception (the intellectual side) and sensation are in the inverse ratio of each other.

Observations.

(I.) The antagonism between a rational control of the activities and feeling is seen in the insensibility to pain which is often manifested when one is intensely interested in the pursuit of some object. General Grant says in his Memoirs that after suffering all night with severe headache, and trying in vain to get relief by the use of such remedies as he considered most efficacious, the information that General Lee desired to see him to consider terms of surrender removed immediately every trace of pain. There is no doubt but the exercise of a strong will conserves the forces of nature for intellectual work and healthy bodily activity, which would degenerate into unproductive feeling or physical disability, unless controlled by the will. Physicians have learned to make use of the will-power of their patients; children should cultivate the habit of using it for themselves.

(II.) Excitement is unassimilated mental activity. That degree of it which is recognized as excitement is the result of many various activities that can not be assimilated with established mental growths. No one act of tyranny ever led to mob violence. A person may brood over one thought till he becomes deranged, but he does not thus become excited. This happens only when many things disturb the mind, one thought succeeding another rapidly without that restoration of equilibrium that comes from satisfactory unification. The activities may result in mere nervous irritation and be dissipated, or they may be combined under some violent determination of the will, and spend themselves in an outburst of passion. When excitement is produced by some impending calamity or great fear, it will be found that the calamity or fear is made to assume many forms through uncertainty, and the mind is at first bewildered, and then, either all the energies excited are turned in the direction of one form of action by a sudden impulse; or else, if there is no controlling motive, the energies are lost and the mind is left powerless. Excitement should be avoided both for the sake of conserving energy and of avoiding irrational action.

(III.) Great crises are apt to be times of great excitement, and it is important to know how it can be controlled. If the view stated above concerning the nature of this activity be correct, its control must be by one of two methods. First, we may obstruct activity and prevent the combination of the forces on any one end until they are dissipated; or secondly, we may determine the will in favor of some desirable end. The one method dissipates, the other conserves energy. The first method is followed when some counteracting hope or fear is presented that has a greater influence in controlling the mind than any of the forces in action; and the second, when some line of conduct is skillfully presented that will harmonize enough of the controlling motives to determine the will. The awakening of trust or fear by the presence of one whom men have been accustomed to obey is one of the most powerful of restraints. Virgil says Neptune so silenced the tumult of the sea by his presence.

> "As when sedition oft has stirred
> In some great town the vulgar herd;
> And brands and stones already fly—
> For rage has weapons always nigh—
> Then should some man of worth appear
> Whose stainless virtues all revere,
> They hush, they list: his clear voice rules
> Their rebel wills, their anger cools."
>
> —*Conington's Trans.*

By appealing to a sentiment even more deeply rooted, General Garfield staid the madness of a surging throng in New York city after the assassination of President Lincoln. When their rage was at its highest pitch, and manifestly beyond all other control, he rose and simply repeated some passages from the book of Psalms, and added, "Fellow-citizens! God reigns, and the government at Washington still lives." At these words ten thousand infuriated men, already breaking away from the larger crowd and moving off with purposes of vengeance, stopped and listened, and their wild tumult settled down into an all-pervading calm.

An illustration of the second method is found in the skill with which Mark Antony swayed the Roman populace at Cæsar's funeral by seeming partly to yield to one, and then to another, of the many conflicting sentiments that possessed the throng, until he found an appeal by which he could gain them all and make them do his bidding. Like Hiawatha,

> "Though they bend him, they obey him;
> Though they lead him, yet they follow."

(IV.) This study of the character of excitement and the methods of its control is especially worthy the teacher's consideration. In the first place, little excitements in the school-room distract attention and dissipate energy, and should be subdued or turned to good account. In the second place, excitement is the same in its nature with all discriminations, which are the beginnings of every activity, and the method of directing the one is the method of growth from the other. In the one case those master-sentiments of human nature, which are able to bring all activities under the control of a rational will, should be developed and appealed to; in the other case, the leading truths, with which other truths may be naturally and rightly identified as parts, should be first and thoroughly established. Most judgments are formed in view of conflicting opinions, whereas facts, seen in their true light, should never lead to conflicting thoughts. The problem of advanced education is the problem of eliminating this conflict of thoughts. The man whose mind naturally grasps the important with a consciousness of its true importance, and at once relegates the obtrusive unimportant to its proper place, is a master in his sphere. The teacher who has this ability in his profession has the elements of success; and he who so develops the minds of his pupils that their thoughts are marshalled in this order, displays a skill which is nothing short of genius.

(V.) While a certain degree of excitement is necessary for progress, the great problems of life have been brought into the clearest intellectual light in quiet retirement. Brilliant gleams of truth may shoot across the mind when it is roused to a high pitch of varied activity, but the steady attention required for consecutive thinking can be maintained only when the feelings are comparatively quiescent, and all the forces of the mind are under control of the rational will.

(VI.) Rational will implies a class of motives that are permanent in their influence. Amongst such may be named the love of approbation, ambition, emulation, and prizes of whatever sort. A motive of this class, later in coming to maturity, but nobler and more constant and enduring than those mentioned, is a sense of responsibility. Lord Erskine, when a young barrister, objected to the ruling of a judge of high repute upon the bench, and set forth his views with such eloquent earnestness and force as both to command the admiration of his hearers and secure a reversal of the decision. When his friends expressed their astonishment at his audacity in attacking the opinion of such a judge he replied, "I felt my children pull at my coat-tails, crying, 'Now, father, now is the time to get us bread.'"

A sense of responsibility is sometimes forced prematurely, but a more frequent mistake is to allow youth to pass away as if life were only a holiday. If injury or wrong results from waywardness, parent or other mistaken friend will assume all the responsibility, repay the damage, and shield the wrong-doer from harm. It is a most fruitful cause of breaches of trust, that great interests are placed in the hands of inexperienced young men,—too young to have a matured sense of responsibility, and who, besides, have not had this feeling developed even as it might have been,—and when temptation comes, they are not prepared to meet it. They are not fully aware of the criminality of their conduct till they see its disastrous results, and instead of learning the lesson in a school designed for instruction, they are taught it by a law that demands only punishment. The beginnings of a sense of responsibility may be found in the very young, and it may be appealed to as the surest way to secure good order and fidelity.

(VII.) The object a teacher should have in view in preparing a lesson is to direct the attention of his class to the points that ought to be made clear. A hint as to the best order may be of use. The first discrimination to attract attention is contrast, since the attention is most easily aroused by truth presented in this form. The antithesis of Macaulay, and the unlooked-for turns of thought of Emerson are the most striking and attractive features of their style. First, then, let a subject be isolated by contrast. Next to contrast is variety. The thought should be developed by repeated discriminations that belong to the unity, and made to take more distinct form in the mind. Illustrations differing from each other in minor points, different characteristics, and different applications of truth, come under this head. Finally, there should be such a classification of the points as to bring all into one view in their proper relations. If one will examine the parables of the New Testament he will find these three features more or less prominent in nearly all of them; and they particularly abound in strong contrasts, as was most necessary in the beginnings of Christian instruction. By universal consent, these parables deserve study as models of the best form of instruction. The parable of the sower, for instance, contrasts productive with unproductive labor. Of the unproductive sowing, some seed fell by the way-side, some on stony ground, and some among thorns. Of the productive labor, some seed yielded thirty, some sixty, and some an hundred. Thus, the main thought is presented by way of contrast, and each of the two members has a three-fold variety. The points here made naturally fall in their proper places from the order of narration.

CHAPTER IX.

EXERCISE.

IT may be seen in a general way in each of the preceding Laws that the powers of the mind are developed by exercise. In no other way can they be known; and it is a fact of such common observation that the use of the faculties strengthens them, that formal proof does not seem necessary. The proof is incidentally found in the proof of each one of the Laws given, for it is the exercise of mental power in some particular way in each case that the development treated of is secured.

2. Whether mental energy is increased, or the brain modified, or both these results are produced are questions that may be asked, but they are not easily answered; and they are not important in discussing the influence of exercise in developing the mental powers. A power is judged by what it can do, and we are never able to trace the cause of efficiency through every phase and moment of activity. We know that care of the body and exercise of mental power are both necessary to healthy mental growth, but, however interesting it might be to know whence comes the mental power, and what is the exact nature of the physical changes corresponding to activity of mind, the laws showing the relation of exercise to growth may be clearly seen without this knowledge.

3. The development of the body by exercise and nourishment manifests itself in three classes of changes. There

is an increase or enlargement of tissues; a strengthening, hardening, or toughening of tissues; and an increase of dexterity or facility of action. The development of the mind shows a similar three-fold change. Growth of the mind by an increase in the number of different forms of activity of which it is capable is called breadth of mind. Strength of mind is the power to hold a thought before the mind in complete consciousness,—that is, clearly, distinctly, and with positive affirmation—in all its variety of contents and relations. Mental dexterity or skill is manifest in the production of activities with a small amount of stimulus and a small expenditure of energy. These forms of development take place in accordance with different laws of exercise.

Law I.—Mental Breadth is Produced by Exercise on as Great a Variety of Forms, and by Expending as Little Energy on Each, as is Consistent with Accuracy of Knowledge.

First Proof.—In so far as mental growth depends upon the body, the Law is easily proven. In the growth of physical organisms nature has provided that the tissues shall be worn away by exercise, and, so long as vitality is not exhausted, a supply of nourishment shall not only renew the tissue thus worn away, but increase it. It is probable that brain cells are thus multiplied by the exercise that comes with thinking. If there is too little exercise growths will be imperfect; if too much, vitality will be exhausted and the tissues worn away will not be fully replaced; if it is too limited in variety, the mind will be narrow.

Second Proof.—The mind must be exercised on a discrimination till it is clearly unified with other activities, when it becomes a permanent form; but the energy expended on a form beyond what is required to make it permanent is so much exhausted from what might be used by establishing other forms and giving greater breadth.

Observations.

(I.) This Law is important in itself, as we would avoid narrowness of intelligence and capability. The greater the variety of forms of activity the greater will be the susceptibility to different forms of stimulus, and the mind will be the better prepared to seize upon chance opportunities for information or gaining other advantage. Many things are taught which seem to the young to have no bearing on life's work, and it is quite the custom to sneer at such things as only good for mental discipline. But we can never know beforehand what use may be made of a piece of knowledge. The application of the truths we learn is much broader than the facts from which we learn them, and how much broader we shall never know. We are continually finding unexpected uses for our knowledge, and sometimes the most important help comes from sources least considered. A boy that has grown up the terror of the community may, by his very temerity, be the salvation of the community in an emergency of fire or flood, in riot or in war. As few men can be spared to a community without some loss, so there are few truths which we may know that do not have practical value sometimes.

(II.) The Law is seen to be still further important when taken in connection with the Laws of correlation. The greater the variety of activities the greater will be the energy that may be concentrated upon a single object.

(III.) When we take the Law in connection with the

Laws of sequence we shall see its importance in securing a variety of fundamental truths, from which one is taken here and another there for the development of more advanced thoughts. When the child has advanced to that period of life at which he takes up a science, he can not afford to go back and learn by experience every fact he needs to use. These should be mostly learned at an earlier age, and with those needed for the science many more will be learned of necessity.

LAW II.—STRENGTH IS GAINED BY THE GREATEST AMOUNT OF EXERCISE CONSISTENT WITH PERFECT RECUPERATION.

First Proof.—As in the case of the preceding Law the application to the increase of physical strength is easy. Tissues that are worn away are replaced by other material of finer and firmer character with every change that comes from healthy action, and the brain cells are connected together by new filaments making it possible to bring a larger amount of nerve force for the exercise of any one thought, and to sustain a single thought longer without fatigue.

Second Proof.—In the unification of several thoughts exercise gives the mind power to grasp and hold under control of the will unities containing more and more differences, and thus take a more comprehensive view of truth.

OBSERVATIONS.

(I.) In order to strengthen a muscle it must be severely exercised in every fiber. This requires the adaptation of exercise to the muscle. By such exercise the arm of the blacksmith, the limbs of the athlete, and the fingers of the pianist, develop a strength hardly supposed possible by one who has never witnessed such changes. By adaptation of exercises the weak little finger may be made to give as firm a touch as any finger of the hand. The faculties of the mind may be improved in a similar way. Memory, judgment, and the will are at least as susceptible to improvement as the little finger. Fitting exercises should be given to each faculty.

(II.) The exercise required to develop strength is severe exercise. It should involve the largest number of discriminations which the mind can hold under unity with distinctness. Exercises which require little effort do not strengthen the mind. They may increase activity, but severe exercise alone calls out strength and builds up character.

Law III.—Skill is Gained by a Repetition of the Same Exercise or set of Exercises with the Least Variation.

First Proof.—When a physical action is repeated a habit is formed, and the action can be performed each time with less effort than before. This is not only physical skill, it is also mental. It may be that the nerve connections are shortened or made to conduct the nervous energy with less waste. But, whatever the cause, the mind gains an easier control of muscular activity by a repetition of the same act. If the act were repeated each time with differences the energy would be divided and the attention disturbed, and development of skill would be slow.

Second Proof.—Skill or facility, in purely mental operations, as in adding figures, is produced in the same way, by a repetition of the same processes. The same is true of each of the mental faculties.

Observations.

(I.) If one desires skill in a particular thing the limits of variety should be determined, and the activities should include this variety, and one order should be maintained in every repetition of the exercise.

(II.) Division of labor is favorable to the cultivation of skill in workmanship, and the confining of the attention to a limited range of thought is conducive to skill in mental operations.

(III.) Breadth, strength, and skill are, in some degree, inconsistent with each other. To secure the highest degree of one is inconsistent with the highest perfection of the others. We may see this in the results of a great division of labor. Skill is acquired for one thing, but devotion to this exhausts the energy that might otherwise have developed broad views and a strong character. A versatile man is not likely to be a profound thinker, nor skillful in any one thing. There should be an effort to keep a fair balance in respect to these three results of exercise. Circumstances may determine that one of them should be sought more than the others, but in any case strength should not be sacrificed. This is a medium between the other two, and it is never wanting in the best class of minds.

CHAPTER X.

LIMITATIONS.

IT is common to speak of the mind as unlimited in its power. It may be that it is capable of endless progress; but this does not imply that its attainments will not always be finite. If the steps of a journey were infinitesimal, and the time for each one finite, it would require infinite time to complete the journey, limited though it might be. The steps the mind makes in the comprehension of truth are infinitesimal when compared with the whole of truth, and a comparatively long time is required for each step. But life is short, and the opportunities of any one individual to learn the truth are few, so that we are shut in within a very narrow limit of possibilities. The limitations resulting from the dependence of the mind upon the body have been sufficiently treated of under Physiological Relations, and those discussions do not need to be repeated here.

Law I.—The Mind is Limited by a Limitation in the Number of its Faculties.

First Proof.—The sense of sight is adapted to distinguish vibrations of a certain character and degree of rapidity. The ear discovers other kinds of vibrations. Other kinds, still, manifest themselves as electricity. But we know there are other kinds of vibrations, as the chemical rays of light, that do not manifest themselves directly to any of the senses. If we had a sense to perceive chemical vibrations, it would, perhaps, add to our powers of knowledge as much as the sense of sight adds to the knowledge gained by the four other senses.

Second Proof.—All our knowledge depends, primarily, upon the senses and self-consciousness. As knowledge is seen to be limited in respect to sense-perceptions, so also it is limited as to self-consciousness. The consciousness of pleasure and pain is limited, and the power of will is limited by the limitations of the cognitions and feelings. We can not analyze our thoughts and perceptions so as to know ultimate elements and intermediate forms of causaation. A fire burns and heat is felt, but what the force is that we call heat is a mystery. However far the mind may go in classifying the knowledge of one thing with other forms of knowledge, the ultimate nature of things eludes our grasp.

Observations.

(I.) It is not a reasonable ground for distrusting the validity of knowledge because we do not know things in their ultimate nature. If we saw an image and supposed we saw an object instead, it would not be rational to say we did not see any thing when we found out our mistake. We may be mistaken in inferring that what we have seen may also be touched, but to be convinced of this mistake should not bring discredit on our consciousness of sight. If we had never seen a painting and were placed in a gallery whose sides were covered with mirrors, each one facing us and reflecting for us a hidden painting, we might walk through the gallery and study those images as though they were the real paintings. We might develop a love for the beautiful, a sense of the harmony of colors, of fitness and proportion of parts, and a capacity for the enjoyment of art, the same as though we saw the canvas itself and the artist before it, with pallet and brush, actually at work at his task. It makes no difference with the reality of the images that their cause is out of sight. When the mind awakens to a consciousness of objects external to itself, it affirms their existence with a certainty that never falters, although the mode of manifestation is changeable. The affirmation of existence is clear, positive, and constant, though the conception of the form and character of that which exists may be obscure, uncertain, and variable. There are, moreover, five witnesses for us to the same thing. We become conscious of existence through each of the five senses in ways entirely independent of each other. While distrusting the finality of our knowledge we should hold fast to its reality. Like the supposed images in the picture gallery, nature, even as we see it, is able to develop in us forms of thought, feeling, and character, worth all the labor and pains we may bestow upon it.

(II.) As the faculties of the mind are but limited at best, all should be developed to the fullest extent. The senses, memory, imagination, reasoning, feeling, and volition should, each in its proper sphere, be exercised and made to contribute its part towards a varied and symmetrical whole.

(III.) In consideration of a possible or probable failure to secure the full development of each of the faculties, the law of compensation may afford a partial remedy. If the imagination is weak, the reasoning power may be strong; if the reasoning power is weak, the perceptive powers may be strong; if the power to acquire knowledge is limited, the power to do, to execute, may be greater; if sight is lost, hearing grows keener.

Law II.—The Mind is Limited by a Limitation in the Range of Each One of its Faculties.

First Proof.—From red to violet there are seven colors, and the variety of shades and tints is unlimited; but our ability to distinguish these differences is limited to a small number. In some instances even the greater differences between the seven colors can not all be distinguished. There is a similar limitation of each of the senses. To gain a slight conception of the feebleness of our natural powers, take again the sense of sight. We look out upon the heavens and see, perhaps, three or four thousand stars. But the telescope reveals many thousand times this number from which the light comes to the eye, and the natural sight is too feeble to distinguish them. Beyond the reach of the telescope there are, we know not how many thousand times as many more.

Second Proof.—We are even more limited in our power to hold clearly in consciousness combinations of differences. When differences are simplest and we are only trying to see or conceive of objects as units, we grasp at once not more than three, four, or five units as distinct from each other. If we try to comprehend more, we group them together, and conceive of the groups.

Observations.

(I.) This limitation of the range of our faculties should ever make us careful in making distinctions and identifications, and lead us to moderation in the declaration of our judgments.

(II.) We may see in the limitation of our faculties a reason for classification and for formulating laws. The man who manages a large business must have it organized so that each department shall be managed with minute accuracy; and because he can not give his personal attention to every item of detail, he must have a head for each department whom he may hold responsible. In the same way, if we master complex results in any department of thought, the details of knowledge must be classified, and our knowledge of classes as wholes must be held responsible to consciousness for the accuracy of particulars. Each class must be studied in detail that combined results may be relied upon with safety. The sailor and the surveyor may rely on the conclusions of Geometry, for the details have all been investigated with care. Other sciences should do the same thing for other enterprises.

Law III.—The Mind is Limited in its Power by the Limitation of Opportunities to Develop.

First Proof.—An appeal to the shortness of life is a sufficient proof of this Law when we consider that every stage of progress requires time. But the limitation of time means more than this. The Law of the dependence of the faculties, one upon another, reduces the time for the development of any one faculty in its order to a fraction of an ordinary life-time. There are but a few years in which either memory or imagination may be successfully developed. If this period, in either case, passes unimproved, nothing can ever compensate for the loss.

Second Proof.—The means for improvement are limited. Many persons can not give the time required on account of the demands upon them to work for their own or for others' support. Some have not the means to place themselves where opportunities of study may be had. Other hindrances obstruct others in their attempts at mental improvement.

Observations.

(I.) Now and then one, like Hugh Miller, may find in the rocks he breaks in pieces for the corner-stones of a palace, or for paving the streets, the very stimulus he requires, so that the work of productive industry and mental development may not stand in each other's way; but in the case of most persons a business must be made of cultivating the mental powers, or they will remain undeveloped. The case alluded to is an encouragement to all who thirst for knowledge, and have limited opportunities for getting it, but most persons must fill a different sphere from that which he filled. It is well it is so, for there is need of many men of a different type for every one like him. The steady progress of civilization requires many a trained scholar to fill the gaps that are left between Hugh Millers.

(II.) If one has lost early opportunities, he should endeavor to use later advantages in a manner adapted to his possibilities of development. One may learn the science of a language late in life, but the formative period of mind has passed, and it is then much more difficult to learn the vocabulary, the idioms, and the more scholarly distinctions. It is almost impossible to develop a taste for reading late in life.

(III.) The question is asked how far the cultivation of the faculties ought to be limited or modified by the purposes of practical life. In the first place, it has been shown that a development of all the powers is a means of strengthening the mind for any one purpose that may be had in view. In the second place, what are called the practical ends of life bear the same relation to mental development, including knowledge, feeling, and will, as soil bears to fruit. The fruit can not be had without the soil;

the soil is worthless except to raise fruit. As it would be folly for a man to invest every thing in land and nothing in raising crops, so it is folly to give all the attention of life to the means of living, and none to the development of life. The period best adapted to this higher end, the development of life's nobler forces, is the time when physical strength is not equal to the burden of gaining a livelihood, and this should be given to mental development; and as much more should be devoted to the same end as is consistent with other obligations. In the third place, a true education will never raise one above his proper station in life. The proper station for every intelligent being is the highest plane of intellectual and moral life which he is capable of reaching. The moral obligations of society should be trusted to hold men in their proper relations toward one another, rather than ignorance. An individual's intellectual and moral powers are so much higher than the ends subserved by the ordinary employments of life, that the Creator has made it possible for one to enjoy happiness under almost any conditions of physical discomfort if the mind be trained and the moral purpose noble.

PART III.

DEVELOPMENT OF THE SEVERAL FACULTIES.

CHAPTER I.

COGNITIONS.

A classification of the mental faculties has already been given, and the order of their dependence and development shown. Laws have also been given for their development in general. It is the design of this part of the work to treat of the development of each separately.

I. THE ACQUISITIVE FACULTY.

1. All our primary, or immediate knowledge, is gained by the use of the senses and self-consciousness, and all other knowledge is based on this. The importance of the right development and use of this faculty is thus seen to be fundamental.

2. First, let us consider the development of sense-perception. Such a perception is the result of two different activities, the activity of the senses, called a sensation, and the activity of the mind by which the cause of the sensation is identified with other percepts. We affirm the existence of a sensation by an act of self-consciousness, and we affirm the existence of that which excites the perception through the senses, and this latter is perception proper. The most important Laws to be applied to the development of perception are:

(1.) The first Law of Sequence. The perceptive powers are the first mental powers to be cultivated, and the first to come to maturity. Pestalozzi and Froebel developed a large part of all that is characteristic of their systems from the truth contained in this Law in its application to perception, and it seems to be the common judgment of educators that they did not exaggerate its importance.

(2.) The Laws of Exercise. To develop the senses they must be called into exercise. It does not develop perception to read and hear about things. Children must see, hear, and feel them for themselves. Perception should be immediately appealed to through the senses until conception is easy and accurate without it. It should be developed in breadth, strength, and skill. While one's natural inclination shown in curiosity must be indulged to some extent, the third Law of Exercise shows there is danger of producing narrowness. On the other hand the fourth Law of Discrimination, taken in connection with the large amount of vitality natural to childhood, should lead us to consider the period of early training as the time especially fitted for laying the foundation for breadth of development by giving great variety.

(3.) The Law of the Progressive Development of Consciousness applies to the perceptions. To the mature mind perception seems almost instantaneous, but the perceptions of the infant are very slow, probably as slow as the most difficult processes of reasoning later in life; and the teacher does not always realize how long it takes a child in his first years of school to gain a clear perception of an object, a picture, or a figure. There must be time for a permanent unification, or the perception will not be complete, and the activity begun will degenerate into unconsciousness.

(4.) The Laws of Discrimination and Unification apply immediately to perception. It was said to be the special function of the senses to give discrimination. Objects so presented to the senses as to stimulate a consciousness of differences are the proper external causes of perception, and the differences in the objects presented should at first be strongly marked and always clearly distinguishable. But the mental perception is a unification. This is an act of the mind itself which a teacher can not help the pupil perform. The teacher often says, you see this or that, and the child says yes, when he sees nothing, or perhaps something entirely different from the thing intended. Such wrong methods should be carefully avoided. Differences can be presented in an order that will suggest proper comparison and unification, but some test of the actual completion of the unification should be sought besides a question that can be answered by yes or no. Tests should be continued until it is known with certainty that the unification of perception is real, true, and clear.

3. The metaphysical question is raised, what is the basis of unification in perception? The senses only give us qualities distinct from each other, as round, hard, and cold. In what way does the mind hold these together in any thing, as an ivory ball? Some have supposed an *a priori* notion of substance to which the qualities belong as the basis of unification. Others hold that we have no valid ground for supposing an underlying substance, and consider it a sufficient explanation to say that we see the qualities together in time and space. But we conceive of no power in time and space to hold such qualities as hardness and coldness together, and the demand for a cause of unity, or a basis of unification, is not satisfied by such an explanation. The General Law of mental development, however, is all the account we can give of the attempt to unify the differences discriminated by the senses,

and if this is accepted as a fact it is sufficient to explain the attempt. Perhaps the best thing that can be said about the basis of unity in matter itself is that it is a cause unknown. Perception unifies the qualities of matter in a body, but discrimination does not bring into consciousness a cause of unity. To call it substance does not reveal it. It is as well, perhaps, to rest with the assertion that the mind does unify in accordance with its natural tendency.

4. Secondly, let us consider self-consciousness. It is the source of our knowledge of our feelings and all the activities of our own minds. The power does not come to maturity so early as perception, for its use involves the exercise of the higher and more difficult faculties. Its discriminations and unifications are, in the main, the more abstract forms of analysis and synthesis. But a child may examine the image or conception he has of an object, and compare it with the object itself, and thus develop his notion into accuracy and clearness by the joint exercise of self-consciousness and perception. This is one of the first methods of exercising self-consciousness. It is easiest because it is most easily referred to the senses. The classification of objects is made in accordance with principles conceived in the mind, and accuracy in this will develop self-consciousness. From the classification of objects we can pass to the more difficult examination of the complex relations of thought, which are made clear later in life.

II. RETENTION AND REPRODUCTION.

1. When physical forces are degraded into heat and dissipated in space it is not supposed the forces are annihilated. We must conceive of them as existing in some form and somewhere in space. They have simply passed

beyond the reach of useful work so far as the earth is concerned. In the same way when mental activity is degraded, and force is dissipated, it is not to be supposed that the force is absolutely destroyed. There is reason to suppose that somewhere in the mind, and in some form, every activity still lingers, though most of the mind's past activities are not only out of consciousness, but entirely beyond the reach of the present reproductive faculty. That they have a place in the mind and may have an influence which we do not recognize is made conceivable, if not probable, by the Laws of the development of consciousness from unconscious impressions, and the Laws of Unconscious Tuition. We may also conceive it possible, and perhaps probable, that every activity is so unified with other activities that no one of them is past recall if the right train of thought were started to lead to it. Two facts are strong arguments in favor of such a supposition. In the first place, peculiar combinations of circumstances will sometimes bring back to recollection things that have not been in the mind for many years, and that seem as entirely beyond recall as any experience can be. In the second place, the experience of drowning persons in recalling the events of their past lives, is evidence of a power of reproduction when all the energy of the mind is called into activity, which is entirely beyond ordinary experience.

2. But retention out of consciousness is only known by reproduction, and we must look for the manifestations of memory in this latter faculty, and draw our inferences from its activities.

3. The Laws most applicable to the development of reproduction are the General Law, the second and third Laws of Exercise, the fourth Law of Correlation and the first Law of Sequence.

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4. All reproduction is an effort of the mind to complete in consciousness the unification of a series of thoughts deposited in retention as a unity of experience, when one part of the series has been revived. This is in accord with the General Law of Development. This unification of thought in memory is called association of ideas. As no thought is deposited in retention except as it is identified with some other thought, all the thoughts and experiences of life must be associated together, and if the bond of association were strong enough, and mental and vital energy did not become exhausted, one thought might suggest another, that a third, and so on till one's entire experiences are brought in review before him. But the force of association is dissipated by time, and actual reproduction is thus made to depend upon the strength of the original unification, the causes for a diminution of this strength, and the impulse given for the renewal of the train.

Under the head of strength of original unification we may have several Laws.

Law I.—Vigor of Mind, Strength of Stimulus, and Attention Give Strength to Association.

First Proof.—Each of the three causes named contributes to make a more perfect unification in consciousness, and the Law follows from the relation of unification to permanent forms of thought as stated in the General Law.

Second Proof.—Whatever importance attaches to the relation of mind and brain applies in favor of this Law. The mind is rendered more active in particular directions under the influence of these causes, and there should be a corresponding development of the brain, particularly those connections between the cells which, perhaps, constitute the physiological basis of association.

Observations.

(I.) As memorizing taxes the mental and vital forces to the utmost, the morning hours and other times of the greatest freshness and vigor should be devoted to this exercise.

(II.) Those points should be presented by means of the strongest stimulus which are most important in themselves, and are likely to suggest other points most naturally. If an illustration is given or a story told, it should be made to bear upon an important truth. It is not the illustration or story which is best in itself that a teacher should seek as a good illustration, but one that best illustrates the thing which he is anxious to impress.

(III.) In order to commit to memory, the attention should be undivided. This faculty, more perhaps than any other, requires freedom from disturbing influences. If a variety of distracting thoughts occupies the mind at the same time, not only will the connections made be weaker, but there will be such diversity of associations as to lead to uncertainty in attempting to recall a particular thing.

Law II.—Repetition Adds Strength to Association.

Proof.—Repetition deepens impression, and makes the activity of reproduction easier, as it does other activities, according to the third Law of Exercise. The tendency of mental energy to take accustomed directions with increasing distinctness is seen in the Law of progressive development of consciousness, and this tendency is but a manifestation of the power of association.

Observation.

In seeking to memorize things that have no natural or necessary relations to each other, such as the names of persons or places, and those things the relations of which require too much effort to trace them out whenever recalled, as the multiplication table, repetition should be mainly relied upon. In repeating we should follow the requirements of the third Law of Exercise until that which is to be learned is well committed, and then vary the order to give greater strength to the memory. Interest will be added if some natural relation can be shown between the thoughts connected, and the mind will gain a firmer hold upon them. If a name is significant of the object designated, it gives interest to point this out. In the case of the multiplication table the product should be so associated in the mind with the numbers that produce it that the factors will at once suggest it; but the relations of factors and product will be studied with more interest if the child makes up the product himself by actual calculation.

Law III.—A Rational Order Strengthens Association.

First Proof.—This is shown inductively by such well-known facts as that things more naturally suggest one another if connected by relations of contiguity in time or space, of cause and effect, of similarity or contrast, and so forth.

Second Proof.—The Law may also be proved deductively by the fact of an increased number of connections established when the mind identifies things with each other under the necessary laws of thought in addition to the unification of a general association.

Observations.

(I.) This is one of the most important laws of memory. All thought should be organized to give mental strength, and truths committed to memory in the order of logical dependence have a double value; they are material to be used, and they strengthen the mind in acquiring them. The parts of a lesson should be taken up minutely in the order of their dependence, and when the outlines are set forth to be fixed in memory, the points should be so classified and arranged as to call attention to the natural relations between the elements. The mind naturally asks what? and why? of things, and when two thoughts are so related to each other that the expression of one of them answers these questions asked of the other, association between them is easy.

(II.) From the last remark it will be seen that the basis of the best order will often depend upon the characteristics of individuals. Some more naturally ask one kind of questions, and hold things up in one light; others view them under entirely different aspects. One person will easily commit verbatim, another is inclined only to connect ideas by the principles they involve. In seeking to cultivate the memory each should take into consideration the characteristics of his own mind.

(III.) To secure a logical arrangement of facts to be learned, careful and complete analysis is necessary. In this form of activity as well as others the strength and value of unification depend upon discrimination.

Under the head of Causes of Diminution of Strength the Law of Degradation, or fourth Law of Correlation, applies. The special application of this Law to the memory may be stated as follows:

LAW IV.—THE STRENGTH OF ASSOCIATION IS WEAKENED BY LAPSE OF TIME.

Proof.—This follows directly from the fourth Law of Correlation. While the thoughts are out of consciousness there is no impulse toward strengthening the association, and the natural tendency to degradation in this case must be to weaken the connection, and render it more and more difficult to restore the original activity.

OBSERVATIONS.

(I.) When any thing is first committed to memory we do not realize at what points the connections are weakest. The lapse of a comparatively short time, however, will reveal these weak places if we try to recall what we have learned. It is a saving of time to commit to memory and allow a subject to pass from the mind a few hours and then try to recall it. If any portions can not be recalled, special energy may then be fixed on those till they are learned with certainty. It is a good habit to learn lessons one day, and recall them and (if necessary) review them the next day.

(II.) This Law points to the necessity for frequent reviews. If too long a time passes between one review or repetition of a subject and another, the connections will be so far weakened that it becomes like learning the subject anew. This same remark will also apply to committing to memory at first. Often a task is difficult, and it requires several efforts to fasten it in memory. One effort should follow another closely enough to build one product upon another, and not lose the results of the first efforts.

Under the third head, namely, the stimulus to reproduction, besides the mental relations existing between the thought that excites activity and the associated thought recalled, relations just treated of, there are conditions belonging to the time and act of reproduction that aid it.

Law V.—Reproduction is in Proportion to Activity in the Direction of That Which is Recalled.

Proof.—This Law follows from the second Law of Correlation. If an intense energy or several activities act in the direction of an association of something to be recalled, the reproduction will more probably be made than if there be but a single activity, and the energy be feeble in that direction.

Observations.

(I.) If the mind itself be in a vigorous condition when we try to remember a thing, the probability of reproduction is increased. If the mental powers are active, thought will take many directions, and we are more likely to have a thought taking the direction of the desired association than if the mind is languid and susceptible of but few trains of thought; and more force is given to the different thoughts entertained.

(II.) Reproduction is more probable if the exciting thought is clearly pictured forth in the mind. The exact point of the association may be missed unless we hold up the suggesting thought with the same distinctness as when the association was made.

(III.) Reproduction is aided when several thoughts associated with the same thing are together brought before the mind. It is a help to place ourselves as nearly as possible in the same circumstances as when the first association was made.

(IV.) The feelings aid in reproduction. Thoughts will suggest each other when we are in a mood to have the same feelings that were originally excited. But memories thus aroused are not seldom the cause of a waste of power, because the indulgence of feelings that do not ripen into action tend so easily to degradation, and it is in itself a degradation to yield simply to pleasurable reminiscence instead of building up and strengthening thought by force of will.

(V.) Reproduction is aided by the will. The will directs the attention and holds all the mental energy ready for unification at the right suggestion, if we have properly trained the mind; and it is only a memory which is subject to the will that is in the highest degree valuable. This power of compelling attention in the act of reproduction is of the greatest importance. The teacher need not be reminded of the frequency with which pupils called up to recite or give a demonstration stop and sit down at the first failure of memory. They do not exert a tithe of their mental power. While chiding does not help memory, but is more likely to distract thought, still pupils ought to be held to do their best at recitation and in every exercise of memory.

(VI.) The first Law of Sequence has an important bearing on the development of memory. Retention and reproduction follow immediately after Acquisition, and in accordance with the Law of Sequence should be developed early in childhood. So clearly is the Law applicable to memory that we not only find the power developed amongst the first of the mental powers, but it is noticeable that it is amongst the first to decline. And it is not only important that memory be much exercised in childhood for the sake of developing the power itself, but it is important for the sake of the faculties that depend upon it for their development. All the higher powers of the mind depend upon the products of memory, mainly, for their growth. We should not content ourselves with simply storing the memory; this is stopping on a low plane of intellectual life; but neither should we try to get along without the exercise of memory, for this is like trying to build without material.

III. REPRESENTATION.

1. The faculty of representation is the power by which the mind forms and holds before itself distinct notions of individual objects. The notion formed is a unity that may be resolved into elements drawn from experience, but the form of the unity is determined by the purpose in view in the exercise of this faculty. It may be the purpose to form an image that shall exactly represent a particular object of experience, as a house we have seen; an image that shall represent a class of objects, as an ideal image of a tree; an image that shall represent a rational notion, as a circle; an image of some new combination that shall subserve some practical end, as a machine; or an image that shall be pleasing or repulsive, as the image of a landscape. In the first case the faculty of memory is called to the aid of imagination, and recollection determines the form of the unity; in the second case the faculty of comparison determines the form of the unity; in the third case it is determined by the concepts of reason; in the fourth case it is determined by the final purpose; and in the last case it is determined by the feelings. In the first three cases the image is made to correspond to facts or truth as

we conceive these to exist, and the imagination has much of the reproductive or imitative element in it; in the last two cases imagination is constructive or inventive, and the image varies with the determination of the will.

2. By some, the reproductive imagination is limited in its applications and considered as the same with the faculty of reproduction. If, however, we examine the process by which the imagination works, we shall find it to be the same thing in all the above uses, whatever the determining purpose may be, and different from the process of simple reproduction. In the case of reproduction the unity is a series of experiences recalling one another by reason of the bond of association. The elements are not brought together by reason of their forming a unity in themselves; it is only necessary to associate them as having been identified in conscious experience. But the imagination always works from the dim outline of something conceived of as a unity in itself to a clear picture of it as a whole and in all its parts. The unity of simple reproduction is the unity of conscious experiences; the unity of the imagination is the conceived unity of things. Again, an object remembered, in order to be a conscious reproduction, must be associated in present consciousness with past experience; but an image, whether it be a reproduction or an invention, is as truly an image without as with the consciousness of its previous presence in the mind.

3. The several uses of the representative faculty mentioned above may be described with a good degree of accuracy as historical, comparative, rational, inventive, and æsthetic. The reproductive imagination has two important uses. In the first place, it is an aid to memory. It takes the elements restored by reproduction and forms a unity of them which can be distinctly and easily held before the mind, costing little expenditure of mental en-

ergy, while the faculty of reproduction adds one after another of the associated thoughts for the use of the comparative faculty or any other use desired. In the second place, it helps the understanding. In reading or listening to instruction, the more vividly we can picture to ourselves the scenes, the persons, the places, and the objects presented, the easier it is to follow the thought and the clearer our understanding will be. The process of reasoning, as in Geometrical demonstrations, is largely dependent on facility in representing by the imagination the objects and forms upon which we reason.

4. We might make a more minute classification of the uses of the representative faculty than the one given above. Images of sight differ from those of sound and the other senses. Images of space or outline differ from images of objects. It is important to note that the imagination must be cultivated for facility in each one of the uses to which it is applied. A person may be able to represent to himself objects of sight with the greatest vividness, without being able to represent a strain of music at all; and the same is true of other uses of this faculty.

LAW I.—THE IMAGINATION IS CULTIVATED BY INDIVIDUALIZING THE FORMS OF MENTAL ACTIVITY.

Proof.—It is the work of the representative faculty to hold forth individual forms, and this Law follows from the Laws of Exercise. Memory is satisfied with recalling objects and scenes as members of a series, but the imagination seeks to picture individual objects and events as they stand by themselves. Reasoning may proceed from abstract concepts and general terms to its conclusions, but imagination asks for a particular instance to which the concept or general term may apply.

Observations.

(I.) While the different forms of imagination do not imply each other, they have so much in common that they easily interchange. If historical and æsthetic imagination are both strong they are liable to lead to confusion in distinguishing truth from fiction. They become a source of real danger to the story-teller and the historian. Macaulay's pen was equally facile in sketching fact and fancy, and his weak point as an historian was his liability to be influenced by his ideals to underrate many real events and characters. He was too much of an artist to be the truest historian.

(II.) When the imagination is used to hold up before the mind a particular character, conduct, or transaction for exact analysis, or when employed in abstract reasoning, it is called philosophical imagination. This is one of the most difficult uses of the faculty, and the person who possesses the power in a high degree has great capacity for intellectual work. It is one of the chief characteristics of great dramatists.

Law II.—The Imagination Economizes Mental Energy.

First Proof.—This may be shown inductively. Children who are soon wearied if their attention is kept confined to one thing, will remain attentive longer in considering things that appeal to the imagination than in the exercise of any other faculty. A writer or speaker will maintain attention for a longer time by frequent appeals to the imagination, in such a manner as to arouse it directly, than if instruction or argument is so given that the imagination is slightly exercised. Appeals to the imagination are most required by the ignorant and untrained.

Second Proof.—The Law may be shown deductively from the nature of the act. It is the most direct form of unification, and the mind easily holds its unities according to the Law of permanency, and adds new discriminations with the least expenditure of energy.

Third Proof.—The imagination is a form of activity nearly involving the senses, and should be slightly exhaustive of energy according to the second Law of Physiological Relations.

Observations.

(I.) The value of imagination as an economical form of activity can scarcely be overestimated. It enables the child to hold a point in mind till understood, it fixes a point in memory by virtue of the completeness of the unification, it gives pleasurable relaxation from exhaustive abstract thinking without straying from the right direction of thought, it collects scattered energies that are tending to dissipation, and it becomes the suggestive beginning of new trains of thought.

(II.) The imagination of children will be cultivated by requiring them to give concrete illustrations of their thoughts. They should be taught to abstract and to generalize, but should not be allowed to omit individual examples. It is not enough for the teacher or the book to illustrate. This does not much cultivate the active imagination. Original illustrations should be required of the pupil. The neglect of this in the teaching of grammar is one of the most serious errors commonly met with in teaching this subject. A rule can not mean much to a pupil who can not apply it to specific cases.

Law III.—Imagination Leads in the Direction of Definite, Clear, and Positive Consciousness.

Proof.—Imagination holds the object of its activity in such complete unity, and with such ease, that the mind is free to consider any of its parts or relations, and thus make the consciousness of variety and unity complete.

Observations.

(I.) Next to the use of the senses the imagination should be employed to secure reliability in trains of thought. Even the most logical minds will draw absurd conclusions from abstract reasoning, but when a particular application is made the error is likely to appear. In the use of poetic and figurative language mixed metaphors would never occur if the images were complete in the mind. One who really pictured himself as in the midst of a stormy sea could never think of a deliverer as a rock of safety.

(II.) In the interpretation of language we should be careful to distinguish between the figurative use of a word and its literal use in a derived sense. What appears to us as the highly figurative language of antiquity may often be softened in its tone by observing this distinction, and we shall sometimes be saved from the conception of most absurd images. Let us take as an illustration the description of the apostle's vision of the Redeemer in the third chapter of the Revelation. The Savior is there represented with a sword proceeding out of his mouth. Taken literally the image is absurd, but when we consider how much the author dwelt upon the term "sword," and that from its effects the term is spoken of as "the sword of the Spirit," we may easily suppose that John only had the image of this word coming from the mouth of the Lord, and that he called it a sword not from any thought of the form of a sword but from the similarity of effectiveness. The term sword meant *word* in form and *sword* in force.

(III.) Imagination is most active in childhood, as it is in the early history of any people, and as it was in the infancy of the race. It is an easy activity for children and should be employed to keep attention, to stimulate activity, and to make thought definite, distinct, and positive. All will not be agreed as to the kind of stimulus a child's imagination should have, but all must say it should be developed. Whether fairy tales and legends of impossible beings and transactions should be employed or not must be left to individual judgment. One caution should at least be given; that is, the imagination should not be excited by objects which excite terror. This is an obstruction to activity and is a habit of mind not to be cultivated unnecessarily.

IV. REASONING.

1. We have already seen that comparison enters into the very first acts of consciousness. Without it even perception would be impossible, for perception requires identification and identification requires comparison. We may compare objects and qualities through the senses and self-consciousness, or we may identify them under the principles or forms of reason which are native to the mind. When we say gold is yellow we make comparison by the sense of sight. When we say an orange is round, or that certain conduct is wrong, we compare the form of the orange or the character of the conduct with the native notion of roundness or that of right and wrong. The unification in the sentence "gold is yellow," is a perception, the unification in the sentence "the orange is round," is a judgment.

2. The power to compare and unify under the principles of the reason is called the elaborative or reasoning faculty. This is not the faculty of reason, and its activity depends on the latter faculty only as discrimination depends upon the power of unification. The ability to develop the ideas of reason must be present, but these ideas are only developed by the exercise of the elaborative faculty or reasoning. This places the activity of reasoning before that of reason in the order of development.

3. The formation of a simple judgment, like that of the roundness of the orange, is an act of the elaborative faculty, because by it we develop thought in the mind which is higher than any act of perception. But it is only a simple act. The elaborative faculty is not only capable of identifying perceptions under the simple principles of reason, it may identify judgments with one another under higher principles of reason. When we say "an orange will roll down an inclined plane," we identify the round object with rolling bodies under the principle of cause and effect. First there is the judgment that the orange is round, then there is the judgment that round bodies will roll down an inclined plane, and then there is the comparison and identification of these judgments. We see that the first two judgments involve the conclusion. What causes all round bodies thus to roll will cause the orange to roll. Such a comparison and unification of judgments is called a process of reasoning.

4. An act of reasoning, even an act of simple judgment, involves several processes. In the above stated judgment, "the orange is round," there is, besides perception, first an act of abstraction by which the attention is withdrawn from the color, hardness, and other qualities of the orange, and fixed on its form. In the second place, the idea of roundness is developed in the mind.

In the third place, the orange is identified by means of this common quality as belonging to a class of round objects. The act of judgment is an act of classification. When we compare judgments together, and unify them under a higher principle, we repeat these same processes, and our final judgment is but a classification. Thus if we compare the round orange with objects that will roll down an inclined plane, we classify them together under the notion of causation. Other objects will do this if they are round, and we say the orange will do it because it conforms to the required conditions.

5. In classifying things we are not always able to find so exact an idea as that of roundness by means of which to make a comparison. When we speak of a given object as a table, we classify it, but if asked why we call it a table, or classify it as we do, we might be puzzled to give an exact answer. We could not say it is because of its form, for a table and a bench might have the same form, and indeed what would answer very well for a bench for a man would do equally well for a table for a child. Besides, tables have many forms, and the primitive idea seems to involve nothing more than a solid with a smooth, flat surface. We could not call the material essential, for it is made of many materials. Neither can we say its use is what makes it a table, for tables have many uses, and many things not tables have the same uses to which tables are put. Nevertheless, we have a notion sufficiently exact to enable us to classify objects as tables without hesitation. This notion is called a general notion, and the act by which it is formed is called generalization. A term that is applicable at pleasure to any individual object that belongs to a given class is called a general term.

6. Several questions are asked concerning generalization, the answers to which have important bearings on

educational problems. First, what is the character of the general notion, and how is it developed? Secondly, in what order is it developed? Thirdly, what is the relation of the general term to particular or proper names?

(1.) In answering the first question, the attention may be called to definitions. A generally accepted definition is the best description that can be put into language of the notion described. But definitions of such words as horse, corn, and so forth, if they are designed to set forth the ideas expressed in the terms, do not stop with a single characteristic, but they name several characteristics, no one of which, perhaps, belongs only to the thing described, and some of them, as color, may be quite variable. The general notion, then, is a combination of variable elements, but of elements that vary only within fixed limits. These limits must be determined by a study of individuals belonging to the class described, and the notion must be developed from the indefinite to the definite, according to the first division of the second Law of Consciousness.

(2.) The second question must be answered in accordance with the facts implied in the answer to the first. If the general notion is developed from individuals, a knowledge of individuals should be given before the general notion is sought. The Laws of Sequence apply to this development, and the order is also in accord with several of the Laws of Physiological Relations.

(3.) In answering the third question it does not concern us to know whether all general terms are derived from individual names or not. The only part of the question of consequence to us here, is, whether we should attempt to develop the idea around the general term, bringing it from obscurity by showing how it may be applied to individuals; or, after calling attention to several individuals, to point out the several things that are common, and give the general term to designate the general idea thus developed. The Laws of Sequence make the answer to this question depend upon the historical order in which the general term is developed. In answer to this question it may be said, first, that it has already been shown that the general notion follows the particular, and we might expect the general term to follow the individual designation. But in the second place, new names are growing up amongst us continually, and it is easy to analyze the process and determine the question experimentally. When a child, a domestic animal, or a place is named, the individual name has no reference to a classification of the object, but general designations are naturally derived from individual names, like the name of a town or country. Thus Roman is derived from Rome. From these considerations we ought to conclude that a general term or a general statement is not sought by the mind and ought not to be given until particular instances have been clearly set forth to develop general notions. At the same time we must bear in mind that the general notion will begin in obscurity, the same as all other notions, and as soon as it begins to develop a term may be required to facilitate the process of unification.

7. The two forms of reasoning known as induction and deduction have already been set forth as to their form in defining these terms. But we ought further to ask what gives validity to their conclusions.

8. In the first place, let us consider induction. It has been defined as drawing a general conclusion from one or more particular examples. If a child burns his hand in the fire he perceives that the fire burns him. This is not an inference. But if he concludes from this that all fires will burn he makes an induction. What is the process by which the conclusion is reached, and what ground of con-

fidence is there for the induction? If we will consider the growth of thought in ourselves, we shall see that the general conclusion does not come into consciousness at the same time with the first perception. Probably there is no thought of other fire than that which is felt. What the mind does is to identify this fire as the cause of the sensation. When the child sees another fire he identifies that with the first fire and says that too will burn. This he does in accordance with the axiom which begins to come into consciousness, that like causes will produce like effects. When his mind has successively identified several fires with the one that was first felt, he drops the thought of individual fires from his consciousness, in accordance with the natural tendency to degradation by unifying without maintaining a consciousness of variety, and he makes the general affirmation, fire, all fires, will burn. In this reasoning the notion of causation, and that of the uniformity of the relation between cause and effect, are necessary notions which the mind accepts and which it can never doubt after they have once been brought clearly into consciousness. But there are two liabilities to error. There may be error in identifying the fire with the cause of the burning, or there may be error in identifying all fires with the fire that burned the hand. Thus when a child first sees his face in a glass he identifies his vision with a child beyond the glass as its cause. This error is a failure properly to identify a perception with its cause. If the hand had been burned by a stove instead of a fire, the child would have been led into the error of supposing all stoves would burn. He would have identified all stoves, the same as all fires, with the one that burned. The mistake in either case is in identifying causes, it is not due to the untrustworthiness of the notion of causation.

9. But there are other kinds of causes which the mind

as naturally identifies as the one given in the illustration, and which are as likely to be the occasion of error. The fire is the active cause of the burning, and is hence called an efficient, or producing cause. If one knows that a certain piece of yellow metal is gold and very valuable, and wants to know if another yellow piece he has found is also gold, he first examines the known metal and finds it heavy, malleable, ductile, and so forth, and he tests it till he has found all its qualities. He then examines the unknown piece, and if it possesses all these qualities, and no others, he identifies it as gold. If he finds a quality which the gold does not possess he immediately says it is not gold. The qualities that are found in gold are all we know of what constitutes this metal, and they are called the material cause of gold. We identify material the same as efficient cause, and with the same liabilities to error. The durability of a steel rail is due to its toughness, and the material is mostly iron. If we identify the toughness with the iron alone, and substitute iron for steel, supposing it the cause of the durability, we commit an error in identifying material cause and effect. If we find a piece of steel that will bend and infer that all steel is thus flexible we commit an error in identifying material causes.

10. Again, the chemist tells us that starch and wood have the same chemical elements and in the same proportions. We correctly identify the material causes of the two substances, but if we use the starch for fuel or the wood for the purposes of starch, we fail of the results looked for. What is the cause of this difference? There must be some difference in the arrangement of the elements. They are put into one form for starch, and another form for wood. This formal element is called a formal cause. It is the plan in accordance with which

elements or parts are put together to make a whole. We are liable to the same error in identifying formal causes as those named above. Thus heat changes the condition or form of union between particles of iron, and it is because the child does not know of this formal cause that he thinks all stoves will burn because one stove has done this.

11. If one man is seen to strike another dead in a quarrel, we say he is a murderer. But when the case is examined more carefully, if it is found that the slayer had been first attacked, and was only acting in self-defense, we no longer identify the act as murder. The purpose of the act is a determining element in our judgment of it, was a controlling cause of the act itself, and this we call a final cause. In judging of the actions of men we must identify this, and if we fail to make a correct identification we err in judgment. In the development of law in a community, at first an act is condemned as worthy of punishment, then other similar acts are punished, then it is declared that all similar acts should be punished, and the necessity arises of identifying acts with the act first punished or with the general class that has been developed in thought by it.

12. Thus we find four classes of causes under which we may identify objects and actions, and we may err in our inductive conclusion if we fail in identifying the real cause of the specific result from which we are led to make the induction; or if we incorrectly identify the causes included in the general conclusion with the specific cause, under any one of the four kinds of causation. The basis of induction is, therefore, the principle of causation, and the liability to error lies in the difficulty of identifying real causes. It is confessed that the connection between cause and effect can not be discovered, and things which we call causes are complex. There is the possibility of

intermediate steps between what we suppose a cause and its effect, and we know not how many of the elements of our cause may drop out before the effect is reached, or what other changes may be made. Thus in many ways the process of inductive argument is beset with difficulty.

13. It will be seen from the above considerations that the trust we put in an inductive conclusion does not rest so much on its conformity with a large number of known facts, as upon our conviction that we have identified true causes. One of the most patient and successful investigators of modern times is the French savant, M. Pasteur. His processes were all of an inductive character, and while he multiplied experiments to some extent, to justify his conclusions, his main effort was always to isolate causes. For instance, he set himself to discover the cause of splenic fever. The disease can be produced by inoculating with a virus, or poisonous matter, which is always present where the fever is developed. This virus was found to contain living germs, and the question was whether to identify these germs or the fluid portion of the virus as the cause. Pasteur isolated the germs by successively propagating them in a medium that did not allow of the reproduction of the fluid portion, and the last product of the germs produced bacteria, and these splenic fever. He again isolated the fluid portion by allowing the germs to settle to the bottom in a tube. The upper portion containing no germs gave no effect, the lower portion produced splenic fever and death. This identified the germs or bacteria with the cause of the fever and excluded the fluid virus. But it was claimed that inoculations had produced death without the production of bacteria in the virus. Pasteur proved that these cases had been erroneously identified with splenic fever, in the development of which bacteria are multiplied. Again it

was claimed that a virus containing bacteria had been taken, and the bacteria killed with oxygen, and yet the virus had proved fatal. Pasteur proved that the virus used contained other living germs that could not be killed with oxygen, and these might be the cause of death. In all these cases he isolated causes in order to identify them with each other and with their effects. The value of his work depended upon his ingenuity and success in this, rather than in the number of his experiments. It has been said that his success depended upon his adopting the experimental method. But he might have adopted a different experimental method, and followed it out with all diligence without success. Rational experiment gave him success. As induction depends so much upon the isolation of causes for the purpose of comparison and identification, we may see in this method of mental activity, as well as in other forms of development, the importance of analysis.

14. But however particular and persevering we may be, it is never possible to say we have made an ultimate analysis, and we are continually forced to modify our general conclusions and our identification of causes. Even with all his efforts and all the positive results claimed for Pasteur, there are those who still doubt the reliability of his conclusions. An illustration of the danger of error in conclusions formed after the most exhaustive study of facts may be seen in the Newtonian theory of light. Perhaps no other person was ever so thorough in experimenting on a single cause as was Newton in experimenting on the nature of light. Yet the conclusion to which he came has now been universally abandoned.

15. There is a class of general truths which depend upon *a priori* ideas, and their validity for us especially depends upon the clearness of our reasoning rather than

upon examples. Such are mathematical truths. But these truths may be seen illustrated in examples, and the general truth may be inferred from the particular without the assurance of its absolute certainty. Thus by taking several examples we may infer inductively that if we multiply the numerator of a fraction by a given number we shall increase the value of the fraction by that ratio. It may be asked whether we should proceed by the inductive method in developing these truths, or try from the first to base our reasoning entirely on the necessary laws of thought. In answer to this it may be said first, that we must develop the idea of the general truth as well as its necessity. In accordance with the Law of development of all ideas by the senses, these ideas, before they are generalized as necessary, must be gained from examples. So, too, in accordance with the second Law of Physiological Relations, it is easier to form the general idea by induction than by pure reasoning. But after the notion of the general truth is formed its necessity can only be proved from the necessary laws of thought, and the mind should not be satisfied with any thing less than this.

16. The importance of induction is two-fold. In the first place, it lays a foundation for unification. When a general statement is made, it offers a notion with which particular notions may be compared. Even though it be a false generalization, it enables the mind to make comparisons, and a denial of agreement will lead to other inductions, and at last a true general statement will be reached. There can be no considerable advance in thought without it. In the second place, the attempt to establish general propositions by continued inductions is called for in the study of all the natural sciences, and in all the guiding principles of practical life. It was a favorite principle of Pasteur that it was necessary to have some

theory to lead one in experiment and investigation. A friend of his once said to him: "If you have established what I was unable to discover you must have been guided to your result by a preconceived idea." This was the way in which Pasteur proceeded, and it is the true way, but one must carefully avoid the error of allowing any importance to the theory with which he begins beyond what the results of experience and facts give to it.

17. The second method of reasoning is called deductive. It begins with a general proposition which it assumes as true. In this proposition one term is identified with another as contained in it, as a part of it, or as belonging to it; that is, the second term expresses that which is a kind of cause of that which is expressed by the first. In another proposition the second term is identified with a third term in the same way. When these two propositions are compared, the conclusion is drawn in which the first term is identified with the third. Thus, if A is a part of B, and B a part of C, A will be a part of C. This reasoning may be traced to our belief in the persistency of causes. If A is a part of B, or is in any way the effect of the cause B, this effect will not cease when B is regarded as the effect of C. We trace C as a cause through B to A.

The whole of this reasoning is abstract, if we assume the truth of the first two propositions. And the truth of these must be evident from considerations entirely distinct from the reasoning of which they form the basis. Deduction, therefore, should succeed induction, which is more closely connected with the activity of the senses. That induction does precede deduction is seen in the fact that induction is required to develop or establish the general proposition with which deduction begins. Whewell has recognized the truth of this in his History of the Inductive Sciences. He says, "To give real significance to our propositions, Induction must provide what Deduction can not supply. From a pictured hook we can hang only a pictured chain." When it is said that the deductive sciences were developed earlier than inductive sciences, we limit deduction to those sciences that are founded on *a priori* principles. As we have seen, these principles are first brought into consciousness by the inductive process, and then established as necessary by the higher faculty of reason. What are called the inductive sciences require more patient experiment and investigation, and the difficulty of establishing truth by induction has been the cause of the late appearance of these sciences.

V. REASON.

The faculty of Reason is to be distinguished from the Elaborative faculty. It furnishes the principles that form the basis of the elaborative process of reasoning. Its products are the latest and most difficult notions brought into clear consciousness. The Laws of Consciousness, Sequence, and Physiological Relations should be especially remembered in developing this faculty. As a relief to the abstract character of this class of notions it is of great importance to cultivate the rational or philosophical imagination.

Observation.

It has been already remarked of the higher faculties that they begin their development at the same time with the lowest, and that children, when very young, may study on the profoundest principles of philosophy. It is not intended, by dwelling on the order of dependence, to discourage attempts to develop the reasoning faculty in the earliest stages of a child's education, or justify its neglect. It is only designed to call attention to the fact that this faculty is slower than the lower faculties in arriving at its greatest power, when it can comprehend the greatest variety in a rational unity. This faculty should receive its due share of attention by simple exercises at the same time that the lower faculties are growing most rapidly.

CHAPTER II.

FEELINGS.

THE feelings constitute the second general class of mental activities. Their forms are the varieties of pleasure and pain which we experience. In distinguishing them from cognitions and the will we are not to seek for successive acts of consciousness, the first forms belonging to one class, and succeeding forms belonging to another. Pleasure and pain are continuous in the very act of acquiring knowledge. But the fact that these acts are simultaneous does not show identity of faculty; for memory and imagination, cognition and volition, may be simultaneous. The following are the reasons for considering the feelings a separate class of faculties.

(1.) No analysis of acts of knowledge reveals feeling. The pleasure derived from the smell of a rose is not a part of the perception by which we distinguish the rose. The perception is an act relating the mind to objective existence; the pleasure is purely subjective.

(2.) The degree of pleasure and pain has no necessary dependence upon the activity of perception. In different persons they vary in relative strength, and in the same person they vary greatly in relative intensity at different times. The relative degrees of intensity in these different activities depends upon the native energy and its development as two correlative modes of manifestation, either being developed without necessarily developing the other, and either being exhaustive of energy that might manifest itself in the other.

2. The distinction of the feelings as a separate class of mental powers is modern, and while it is now generally made, there is still some diversity in the order of treating them. Some treat them as following, and others as preceding the cognitions. The first conscious feeling as well as the first conscious perception must originate from the action of the nervous system. If we use the term to include the first impulse of the mind to activity when it is excited by the senses, and consider it as representing the state of the mind itself without reference to the cause of the change produced, then feeling must clearly be considered as preceding perception. The physical feelings may possibly originate as physical activities along with reflex nerve-activity below consciousness, and consequently before perception. But if we regard this initial impulse as coming into consciousness under two separate forms, one being an affirmation of objective existence which we call perception, and the other a consciousness of some kind of pleasurable or painful activity, and if we mean this activity by feeling, it is not necessary to suppose that even the most primitive conscious feelings precede cognitions in their genesis. When, still further, we consider feelings as a mode of reflective consciousness, and find the most important of them, as the pleasures of the imagination and the moral feelings, originating in activities of purely intellectual cognition, we are compelled to treat them as following the cognitive faculty.

3. If we compare feelings with volitions, we shall see that the activities of one class become motives of the other. Even the moral feeling, which is not developed without volition, is the necessary motive of moral action. As an illustration we may take a case of obedience. A child is repuired by his father to perform some act. There must first be an understanding of the act required, then a

consciousness of the obligation to obey, then the act of obedience. If the feeling of obligation does not precede the act, it is not true obedience. The first feeling of obligation does not arise from the command, but only as the child struggles with the act; yet the feeling must mature before the act, or obedience is not perfect. Hence we are led to place the feelings intermediate between cognition and volition.

I. CLASSIFICATION OF THE FEELINGS.

(1.) It is beyond dispute that no very satisfactory classification of the feelings has ever been made. This is manifest, not so much in a failure to make the classification consistent and complete, as in the lack of an end to make it important. It would seem the more admissible, therefore, to depart somewhat from ordinary classifications and terms in places where the purpose in view requires it.

(2.) The object of a classification of the feelings here, is to present them in the order of their development, and show their relations to each other and to the other mental activities. The very term employed to designate this class of activities, naming them not only from the senses, but from the lowest sense, points to their origin in sense, like the cognitions, and to a beginning with the earliest sense-activity. It has been said above that the sense of feeling, while most fully elaborated at the ends of the fingers, manifests itself throughout the whole surface of the body, and wherever there are nerve termini. A consciousness of pleasure and pain attends this general sense of feeling quite distinct from the feelings that attend the activities of the specific sense of touch. They are discriminating, and we say we feel cold or weary or restless with as great exactness of meaning as we would affirm an ocular perception. But these feelings are not connected with special nerve centers, but they depend upon the organic unity of the entire physical system for their manifestation in consciousness. This characteristic quality makes the term organic feelings a fitting designation for them.

(3.) In the second place, there are distinct feelings connected with the activities of the senses. The pleasures connected with the exercise of the senses are of a higher order than the organic feelings, and when compared with each other rise in point of delicacy and complexity as we ascend from the sense of feeling to the sense of sight. These feelings originate in activities in which sense-perception also originates, but they are confined to the pleasure and pain that arise from the sense-impression, and must be distinguished from the pleasure of thought which follows the sense-impression. Belonging to the organs of sense, they may be called sense-feelings. Thus, we find two classes of feelings, springing directly from the physical system, and together they may be classed as physical feelings.

(4.) Higher than the physical feelings is the pleasure that originates in the activities of the faculties above sense-perception; that is, in memory, imagination, and so forth. These may be called the intellectual feelings or emotions proper. They may be confined to the activities of the cognitive powers, or they may depend partly upon such a consideration of an end in view as to involve an activity of the volitions. The former, inasmuch as they involve nothing beyond the observation of things about us, or the consideration of purely intellectual truth, may be called contemplative feelings; the latter, involving the idea of doing something, may be called practical.

(5.) The contemplative feelings mainly come under what are called æsthetic emotions, and are usually treated of under the heads of sublimity, beauty, picturesqueness, wit, and humor. This classification may not satisfy every one as being exhaustive, and it would be hazardous to attempt rigid definitions of these in few words. They are not, however, separately treated in schemes of education, and it is not necessary to do more here than simply to refer to works that treat especially upon these distinctions.

(6.) The practical feelings are, in the main, more easily distinguished from each other than the contemplative, and may be more clearly described; and they are individually of great moment in the development of character, although a logical and exhaustive classification would be difficult or impossible. There is first a pleasure in the consciousness of power to do. It includes the pleasure of knowing, for in an intellectual sense, knowledge is literally power, and *to ken* is *to can* or to be able. It is the motive element in ambition; and the love of money and of preferment largely depends upon it.

(7.) Besides the pleasure taken in the general consciousness of power, pleasure and pain accompany all the exercises of the mind that lead to voluntary action. They may be classified as feelings that originate in thoughts of self, or feelings of self-concern, and feelings that originate in thoughts of others. These last are again divided into feelings that spring from a sense of duty, the moral feeling, and those that arise immediately from thoughts of beings in whom we have pleasure, and for whom it is possible to do some service, or feelings of love. The religious emotions would be mixed according to this classification, most of them belonging to the last two classes, but others, like awe and reverence, belonging to the contemplative feelings, and other emotions belonging to other classes.

This classification may be tabulated as follows:

- I. Physical Feelings.
  - 1. Organic.
  - 2. Sense-feeling.
- II. Intellectual Feelings.
  - 1. Contemplative.
    Wonder, Sublimity, Beauty, etc.
  - 2. Practical.
    - *a.* Egoistic.
      - (1.) Sense of Power.
      - (2.) Self-concern.
    - *b.* Altruistic.
      - (1.) Ethical feelings.
      - (2.) Love and Hatred.

(8.) The lowest feelings of the lowest class are feelings of physical well-being, or a general sense of happiness or misery, and depend upon what is called temperament. Some persons have such a happy temperament that no accumulation of misfortunes can make them long miserable, or ever make them despair; while others seem almost to live on the verge of hopelessness, although surrounded by the most bountiful supply of earthly comforts, and able to enjoy the highest delights of taste and moral pleasures. As an example of the former class Dr. Priestly, the discoverer of oxygen, has been named. He lived a happy life and died in peace, according to the testimony of all his friends, under an accumulation of misfortunes which has been summed up as follows: "He lost his mother when a child, was brought up under a most depressing system of training, passed through the severest changes of religious thought, made an utter failure in his profession as preacher, which he left penniless, was flattered and favored by a noble benefactor and then unceremoniously cast off, saw his great discovery credited to another, was attacked by a mob, from which he barely escaped, with the loss of home, library, and papers, was disowned by the learned society he had done much to immortalize, and in old age was driven from his native country to die in a foreign land where he recounted with grateful remembrance for the encouragement of men the great felicity he had been permitted to enjoy throughout a long life." His own all-sufficient explanation was, "I was born of a happy disposition." Dickens has represented the same disposition in the character of Mark Tapley, whose fortune was never of the brightest, but whose good nature always blossomed into jollity when his affairs were in their worst condition. An illustration of the other character may be seen in the poet Cowper, whose worldly affairs were always prosperous, and who enjoyed the keenest intellectual and religious delights, but who, notwithstanding, seemed ever depressed to the very verge of suicide. It is evident from such illustrations that these feelings are almost completely dependent on physical organization, and that the higher faculties are powerless to control them directly. It is not the purpose here to treat of the method of dealing with these feelings, but to point them out and show how low down they are in the scale of development notwithstanding their great influence in controlling conduct. The work of the teacher in relation to them will be spoken of in another place.

(9.) The sense-feelings have been spoken of as beginning with the sense of feeling. Even if a child's first conscious perception comes through the eye this may be explained on other grounds than those of the pleasure of seeing. The natural sensitiveness of the organ of vision and the obtrusiveness of the objects of sight are enough to account for this. But observation shows that a child's first experiments are in trying to get things into its mouth, which may come from the pleasure of gratifying hunger, an organic feeling, and its next experiments are with its hands, in pulling, striking, and handling things. These acts must be held to indicate a development of pleasure in the sense of feeling. That the pleasures of the other senses are developed in the order in which they are generally named, beginning with feeling, must be a matter of common observation.

(10.) The beginning of the contemplative feelings, the lowest of the emotions, is wonder or surprise. There is such an unexpected combination of discoveries, or form of discriminating activity, that at first all attempts at unification are checked by a sense of mental impotency. That this feeling is contemplative is evident from its being intellectual and not dependent upon any activity of will for its development. When one sees what he calls a wonderful sight, or hears a wonderful tale, the feeling has nothing in it of a struggling attempt to decide or do something. The wonder comes suddenly, before any action can be thought of. That the feeling is the first of the emotions may be seen in the fact of its early development in childhood, and from the fact that a trace of it may be found in the first shock of each of the other feelings of this lowest class of emotions. It is quite strong in the feelings arising from sublimity, and does not die out till the sense of the sublime itself passes away. It can be easily traced in the sense of the beautiful, if the object excites decided emotion, and the sense of wit and humor largely depend upon the play of the feelings between wonder and the satisfaction of seeing an easy solution of a perplexing difficulty. Without making the same classes of the intellectual feelings as here, Sully, Hamilton, and philosophers generally, consider wonder as the lowest of the emotions proper.

(11.) The lowest of the practical feelings are the egoistic, and it is doubtful if these are ever entirely absent from even the highest altruistic feeling of love. The lowest of the egoistic feelings is the sense of power. This consciousness is developed at a very early age, and is probably connected with the origin of the notion of causality, perhaps its cause. If so, it must begin near the beginning of consciousness. The sense of muscular power, the pleasure of knowledge, the pleasure of moulding, directing, and controlling others, courage, and the feeling that we can work our will and have our way, are but varieties of these emotions. These feelings are called egoistic because they do not necessarily involve any thing outside of ourselves, as in the sense of muscular power and self-consciousness; and they are not classed with the feelings of self-concern because the activities to which they tend may have ourselves or other objects equally well for their end.

(12.) The lowest of the feelings of self-concern is that of personal identity. The consciousness of self depends upon a previous development of perception and memory, and is later than the consciousness of power, but yet it begins in infancy. The act of cognition in this consciousness is recognized and fully treated in works on Psychology. It gave rise to singular disputes in the early history of philosophy, but it may be doubted whether any one ever seriously doubted the justice of the affirmation of personal identity unless he doubted at the same time the grounds of all knowledge. Nearly five hundred years before Christ, Herodotus said that all things continually change, like a river whose waters are ever flowing away and giving place to other waters coming down from above. It was said that all things lose their identity as soon as they come to be, and other things become to take their places. Plutarch says it was argued in his time as a logical deduction from this principle that the man who has formerly received a loan does not now owe, because he has become a different person; and the man who was yesterday invited to a feast comes to-day uninvited, because he has become another. But these arguments he deems absurd, and says without fear of dispute that a man remains one or identical from the beginning to the end of his life. But while this principle of identity is thus thoroughly established as a cognition, the feeling that accompanies the knowing consciousness has received little or no recognition. Yet it is clearly manifest amongst the other early pleasures of infancy. When a child becomes interested in its fist and its foot, striking or kicking a hard object with them, and pulling and handling them, and eagerly seeking to learn if they belong to itself, it must be prompted by this feeling; and when the fact is established, and it realizes that its fist and foot are its own, the satisfaction is shown by look and gesture, and the feeling is more permanent and more frequently recalled than any other feeling developed at this age. The same characteristics of persistency and agreeable interest are found in the acquisition of any new knowledge. The fact of its being a part of ourselves is a delight that continues, and the pleasure keeps one recurring to it until it has become familiar. The feeling is practical in that it is developed only in connection with the activity of doing, while it differs from the feeling of power in that it is associated with what has been done rather than what we are able to do, and it comes from a consciousness of what we are, rather than what we can do. It grows with accomplished results, and may become even disagreeably strong and obtrusive in advanced age when the sense of power is weak. It clearly marks the difference between the actual assimilation of truth as a part of the mental fiber, and the act of committing to memory what is said about the truth. It is distinctly manifest in all our activities for self-preservation and self-defense, and in the longing after immortality. It leads us to desire to keep all our powers and possessions, and develop them to the utmost. It makes us shudder at the thought of annihilation, or the dissolution of the elements that unite to make up our identity, so that no one probably would be willing to exchange his identity for that of any other created thing. Such a choice would go deeper than the choice of the suicide. It is no objection to the claims here put forth for this feeling, that we can not tell precisely what constitutes identity in the abstract, for in the same way no one can tell what constitutes sublimity or beauty, and yet both are recognized as facts. The feeling is specialized as anger, envy, pride, revenge, hope, fear, self-complacency, vanity, diffidence, shame, remorse, and despair. The sense of power is also manifest in connection with these feelings sometimes in excess and sometimes as a sense of weakness. When the sense of power predominates as often in anger, revenge, and remorse, the feeling bursts forth into violent passion.

(13.) The lowest of the ethical feelings is the sense of responsibility. It is the feeling which one has that it will make a difference whether he does a certain thing or not, and that the results will not be altogether altruistic, or foreign to himself, but that they will react upon the doer. Responsibility in general may be distinguished as commercial and ethical. The former is judged without regard to motive, and its measure is the measure of the effects actually produced; the latter is judged from the motive that impels the act, whatever the result may be, and even when the intended result is thwarted. But distinct as these kinds of responsibility are in one view, commercial responsibility becomes moral also as soon as an effect is produced, and moral responsibility is commercial also to the extent of the effect actually reached. The sense of responsibility is specialized as forms dependent upon special relations, such as duties to a benefactor, duties to a dependent, duties to an equal, and as forms dependent on general relations, such as honesty, truthfulness, justice. In training the moral faculty it is important to know where to begin. It has been sought to trace the growth of moral conduct to a growing necessity for parental care in the evolution of animal life, in order to perpetuate the species. This supposes the race to be continuous from the lower orders of animals, and if we apply the Law that development in the individual follows the same order as development in the race, it would make duties toward dependents the first duties of which the child should be conscious. It is difficult to see how such a result can be reconciled with the facts observed in the growth of moral character, or with what we would expect from the beginning of a child's life in entire dependence. Again, the feeling of commercial responsibility seems more simple than that of moral responsibility, and therefore more likely to be developed first. And again it is to this sense we resort in appealing to a child when its moral sense is dull. It is hoped the moral sense will follow. But this feeling of commercial responsibility could scarcely spring from one's relations to a dependent as a dependent, such as a parent's relations to his offspring. From these considerations we may consider that the moral feelings growing out of dependent relations are the lowest, and that these spring first from a sense of commercial responsibility.

(14.) Of the last class of feelings, the emotions of love, the lowest is sympathy. This feeling alone is almost without discrimination, and is closely allied to the physical organic feelings. Yet, from being a feeling merely induced by the consciousness of another's suffering, it may grow into friendship, affection, love.

II. DEVELOPMENT OF THE FEELINGS.

LAW I.—THE FEELINGS ARE DEVELOPED FROM A BEGINNING IN PAIN.

First Proof.—The lowest development of feeling in each of the classes is painful rather than pleasurable. This may be seen by recalling them one by one.

(1.) The organic physical feelings manifest themselves in the first days of infancy entirely on the painful side. Hunger and other painful disturbances of the nervous system arouse the sensibilities, but the absence of painful sensations is like the absence of all sensations, and the child soon falls asleep.

(2.) The sense-feelings begin with the sense of feeling, and this sensation evidently comes first into consciousness as pain.

(3.) The sense of wonder with which the contemplative feelings begin comes with a shock of pain.

(4.) The sense of power comes with a painful effort to avoid or overcome something troublesome.

(5.) The consciousness of personal identity is developed through a series of perplexing operations of striking, rubbing, pulling, and pinching hands and feet, by which a child painfully pursues a course of self-discovery.

(6.) The moral feelings are first aroused in a sense of wrong suffered. The last rational appeal that can be made is to ask, "How would you like to be treated so yourself?"

(7.) Sympathy is a suffering with another. Pleasure is communicated by the sight of happiness, yet only slightly unless we know the cause, but it gives great pain to witness pain without reference to the cause.

Second Proof.—The first consciousness of a new sensation or emotion is manifest in a shudder, or some aversion or involuntary shrinking from an object.

Observations.

(I.) Prof. Bain says, as quoted above, we are by no means to exult in the fact that all activities begin with a painful feeling. We must, however, accept it as a fact and accommodate our methods to the truth involved. It is not a proof in itself that a method of training is wrong, or a subject of instruction out of place, because the method involves pain, or the subject is hard. On the contrary, we must expect a certain amount of painful stimulus to arouse voluntary effort and to compel the putting forth of the last degree of voluntary strength. The pleasure of friendship or love will lead to many acts of self-sacrifice and strong devotion, but the fear of losing a friend will compel to the exercise of ingenuity and energy that would be utterly impossible under the influence of pleasure alone. The most complete power of self-command and the highest attainments of experience have come through the deepest sufferings.

(II.) Notwithstanding this fact, pain is in its nature an obstruction to activity, and changes its direction. Physical pain exhausts vitality, and brings a rapid destruction of the bodily organism. Fear stops the natural flow of blood, and brings paralysis of both mental and physical powers. There are cases where fear has been the immediate cause of death. It is said the advantage a lion has from its roar is that it unnerves its prey and renders it incapable of escape or defense. It may be that this sudden check given to the natural activity of vital forces is what arouses the unconscious attention, and that the increased flow of energy when the effect of pain is overcome, heightens the incipient wave of possible pleasure, and that consciousness comes in the play between pain and pieasure, and is fixed upon the pain because of its greater suddenness. Whatever the explanation, however, two conclusions may be rigidly maintained; first, that pain is a means of exciting conscious activity; secondly, that it is not to be sought for its own sake.

(III.) Two conclusions follow from the relation of pain to activity: First, it should be limited in degree to the amount required to excite the activity; and secondly, it should be adapted to the activity desired. In reference to the first conclusion it should be remembered that an excess of pain of any kind, as fear, shame, bodily suffering, is a preventive of the very activity to be excited. Perhaps an exercise is demanded that will require thinking, and because the mind does not work as rapidly or as clearly as desired, it is put by fear into a state where it will not work at all. The following occurence will illustrate the point, and while it is only one instance, we may reasonably fear it represents a larger number of cases than is generally supposed. A student, a young man, reported an apparent fault to his teacher, and was so disturbed that he could not make his explanation clear. The teacher, seeing the indirect way of putting the circumstances, charged the pupil directly with falsehood, and this so terrified him that he confessed he had not told the truth; and he readily assented to whatever else was charged against him. It was afterwards found that the pupil had been entirely honest and truthful, and he was again called to have the mistake corrected, and when asked why he confessed to a falsehood, he said he was so frightened that he could not think, and did not realize any thing he said. The difference in sensitiveness between children is very great, and when many are brought together to be treated as a school, it requires the greatest care and judgment to regulate the incentives of pain, and adapt them to these differences of individual character. While the mind is actively engaged, the embarrassment of recitation, the fear of possible failure, and other causes of anxiety should, in general, perhaps not always, be made as small as possible. In regard to the second point, a distinction should be made between pain that is meant to direct the attention, and pain that is designed to awaken interest. When instruction is required, that is, in cases where a child fails in grasping or doing what is desired through ignorance, stimulants of whatever kind should be adapted to give experience of the truth. If a child fails to understand a statement, a rule, or a definition, put him to the trouble of finding an example and applying the statement, or whatever may have been obscure. In all ordinary school instruction adaptation like this, where experience not only stimulates activity, but illustrates the truth sought, is the most important means of education in the hands of the teacher. But when the truth is known, and the mind fails to respond to it because of insensibility, something more than simple illustration is required. It may be that the mind is naturally sluggish. In this case an attempt should be made to cultivate facility. A shock of surprise may also often be produced by an antithetic or new way of presenting the truth so as to excite activity. It may be that insensibility comes from a bad disposition or perverse will. This is the case in moral insensibility. Here it is impossible to give complete illustrations, because the consequences can not all be gathered up, and if it were possible to make an offender experience all the consequences, the severity of them would forbid their application for purposes of education. In dealing with such cases, the first effort should be to check the disposition to wrong-doing by preventing the offender from enjoying the results he had hoped for. Above all things, if a child has committed one wrong, do not allow him to enjoy the advantages that may come from it and escape its penalties by committing another, like lying about it. It is better to pass over many a misconduct, and leave a child uncertain whether or not he has escaped notice, than to call him to account for a suspected wrong, and allow him to escape by deception. In the first case, one disposition is strengthened; in the second, the whole character is contaminated. If enjoyment of the advantages of wrong-doing can not be prevented, punishment outweighing this enjoyment may be inflicted, and in choosing the kind of punishment it is well to consider the character of the wrong, but more important to consider the character of the child. Having done all that is possible to check the disposition to wrong-doing, the second and most persistent effort should be made to establish the opposite disposition. This requires that the child should be brought to experience the pleasure of right conduct; and the methods to be employed must be left to the ingenuity of the teacher.

(IV.) Pain is the lowest incentive, and is therefore the last resort. Higher methods of stimulating activity should be sought first, but one should not be willing to give up a disposition as hopeless until this stimulus is tried. Xenophon considered it a defect in the character of his friend Proxenus, an Athenian general, that he thought it sufficient in the training of an army "to praise those who do well, and not to praise those who do wrong." That is, he relied on the pleasure of being praised both as an incentive to well-doing, and a hindrance to ill-doing. If, however, pain is inflicted, we should watch with the greatest solicitude for pleasure to come from the corrected disposition, for unless this comes to encourage and strengthen right conduct, the pain will be barren of good.

LAW II.—THE FEELINGS ARE ELEVATED IN CHARACTER AS THEY REQUIRE THE DISCRIMINATION OF VARIETY, AND ARE DEGRADED AS THEY LOSE THIS DISCRIMINATION OUT OF CONSCIOUSNESS.

First Proof.—The intellectual feelings or emotions involve a greater variety of discriminations than the physical. The consciousness of a simple excitement in the nervous system, answering only to the exciting physical cause, is all that is found in sensation. Intellectual feelings require an addition to the conception of this cause,—the relation of its parts and qualities to each other, its relations to self as a cause of the emotion, its relations to other things, association with things distant in time and space, and thoughts of the past and future.

Second Proof.—The classes of sensations and emotions rise one above another in complexity. The sense-feelings involve the consciousness of happiness or misery which is found in the lower organic sensations, and something in addition; the intellectual feelings involve the discriminations of the senses, and something besides; the practical feelings involve the intellectual,—for we properly speak of moral sublimity and moral beauty,—and add something more; the altruistic feelings involve the egoistic, and something beyond.

Observation.

In the development of the feelings we should pass from the lower to the higher, and seek the most perfect discriminations. This is demanded by the General Law of Mental Development, that the greatest development requires the greatest variety in unity. A general feeling of happiness or misery should be specialized by the senses and located by self-consciousness so as to determine its cause. This is what a physician first tries to do for his patient, and if he proceeds correctly in his diagnosis, he thereby more than half determines what remedies to apply. If the sufferer from depression, irritability, or what is called the blues, would make a thorough and conscientious diagnosis of his physical and mental condition, it would bring him far on the way to happiness. The stirring of his useful powers to activity, which ought to follow such a self-examination, would be a remedy to restore complete mental equilibrium. The ability to appreciate the sublime and beautiful in nature and art is a high and noble power, and when one has an intelligent appreciation that enables him to hold in mind a discrimination of the qualities that work together to excite these emotions, as a true critic of art is able to do, he has made a high attainment. This power to analyze the sublime and beautiful is necessary to a high appreciation of them, and it is what every one should seek. But it is not and can not become the highest attainment. No one should be satisfied to call this his highest aim, however perfectly he may be able to discriminate the sublime and beautiful. There are higher, more complex, and more potent emotions, to which this power can never grow. The demand for the practical emotions is not only to secure the highest ends of life, but they are higher ends in themselves, as they indicate a higher stage in the development of mental energy. It is true, the lowest forms of these are not of a high character, but they are the beginnings of emotions that lift the soul immeasurably above a merely contemplative or speculative life. The sense of power, the sense of self, and emotions of sympathy should not be left to expend energy without discrimination. They should be developed till their practical limit is reached in the highest knowledge, the most complete command of self, and devotion to the highest ends of existence. When this is accomplished, the development of the feelings is at its highest point in the discrimination of variety in unity. All the feelings begin in a low type, and if we stop with this, our energy is but poorly spent. If physical feelings fail to reach the discrimination of the senses, the activity excited is of little worth. If the intellect fail to add its recognition of causal relations and harmony to the sensations of color and sound, the senses furnish but little pleasure, and render slight service. If the emotion of wonder do not fade away into the higher emotions of sublimity, beauty, and reverence, it has no fitting place in the human mind. In the same way the sense of power, self, and sympathy must rise above these feelings to the highest emotions, and lead the will to action, or they will end in unimportant results.

Law III.—Exercise by the Same Stimulus Renders Feeling More Difficult While it Makes Thought and Volition More Easy.

First Proof.—The senses improve in discriminating power by exercise, but they are hardened against pleasure and pain.

Second Proof.—The emotions are less affected by the same tale or experience repeated again and again, but a habit of attending to the things called to mind makes our understanding of them clearer and action easier.

Third Proof.—The feelings are more easily moved in childhood than in advanced life, but the trained man can understand, and command his powers, more easily than a child.

Observations.

(I.) The energy of feeling is very abundant in childhood, but if it is squandered there will be a dearth in old age. Those who habitually make strong appeals to their tastes, their appetites and their passions in youth reduce the possibilities of enjoyment in later life.

(II.) When the feelings are excited to secure a higher end the lowest degree of feeling that will secure it should be sought. If the physical system is to be stimulated by medicine to arouse it to greater vigor, the lowest stimulus that will accomplish this should be used, or stimulants will lose their power. Rewards and punishments should be measured by the standard of individual character and disposition. Impartiality does not require that every child in a class should be treated like every other child. The sense of justice is keener and more discriminating than any law. If a teacher is manifestly seeking individual good, his skill in adapting means to this end will raise him higher in the estimation of his school than the rigid enforcement of an inflexible rule. Sometimes a frown is more than a child's heart can bear. Incentives should be adapted to cases, as a physician adapts medicine to constitution and temperament, as a machinist applies power at the point of resistance, in order that the end may be accomplished with the least waste of emotion.

(III.) As pupils advance in age, less should be made of the emotions and stronger appeals should be made to the intelligence and reason. A difference should also be made in the kind of motives appealed to. The higher grades should be more and more called into exercise.

LAW IV.—THE OFFICE OF THE FEELINGS IN MENTAL DEVELOPMENT IS TO STIMULATE THE WILL EITHER IN DIRECTING THE ATTENTION OR LEADING TO ACTIVE VOLUNTARY ENDEAVOR.

First Proof.—It is only necessary to refer to the laws of attention and the consciousness of motives, to show that the feelings do direct the attention and lead to voluntary action.

Second Proof.—That the feelings have an end beyond themselves in mental development is seen from the fact that they are transitory, while the voluntary thought and action to which they lead are permanent. A feeling can not be prolonged beyond a limited time, and can not be renewed by direct memory. To enjoy it again, the causes of the feeling must be renewed either in experience or by the imagination. The most that can be said of the permanency of feeling is, that experience renders the mind more susceptible to feelings of a certain kind. But thought and volition are permanent mental products.

Third Proof.—It need not be denied that happiness is an end in itself. Other results are ends in themselves, and have at the same time a higher end. The tree subserves many ends besides that of bearing fruit, and the highest end of the tree in the vegetable world is to bear fruit. That happiness is not the chief end of pleasure, nor misery of pain in the constitution of the human mind, and that the pain and pleasure of voluntary thought and action are not the end of these activities, but rather that these activities are the end of feeling, is evident from the last Law. If the human mind were constituted to secure pleasure as the chief end, and thought and volition were developed to secure this end, exercise ought to make the attainment of this end more easy, in accordance with the law of skill, but the reverse is the fact, as has been shown. To secure the same degree of feeling a second time, a greater expenditure of effort is required. The exercise of thought and action, on the contrary, makes these activities possible with less emotion. Exercise develops higher grades of feeling corresponding to the higher discriminating power of thought produced, but the degree of each particular feeling follows the Law, so long as discrimination remains the same.

Observations.

(I.) One of the first motives to be used with children is the love of approbation. Dr. Howe reported of Laura Bridgman, that during the first year of her development with him, she would playfully make mistakes with one hand and strike it with the other, and often pat herself on the head, which was the sign of approbation, when she performed work correctly. When we think how almost utterly incapable of thought she was at the beginning of the year, and what obstacles she had to overcome to gain any ideas, we may see how early in a child's development this stimulus takes a fixed position among the mental forces.

(II.) The sense of power is called by Prof. Bain a motive of the first order. It is developed very early, and retains its effectiveness as long as the active powers of life continue unimpaired. The oft-quoted remark of

Virgil, "Success gives these strength; they can because they think they can," touches upon a motive that kindles enthusiasm alike in youth and manhood. It is a motive, too, that can scarcely be abused, unless, indeed, it leads to overexertion. It is cultivated first, by leading children to succeed in their attempts; secondly, by allowing them to succeed; and thirdly, by allowing them to enjoy such success as they are capable of. A recitation in which a pupil feels he has taken ground that he can hold gives this pleasure. A public declamation or other exercise gives this consciousness in a high degree, when well performed, and such exercises would be justified by this result alone if nothing else were gained. It takes away this pleasure to help a child over the last step of any process of thought with a "Don't you see this is so?" or "Is not this true?" It makes a partial failure nearly as bad as total failure when, instead of mixing praise with blame, a teacher fails to recognize the good work actually done, and only finds fault with what has not been done. If a child has done well for him, he is deserving of praise, no matter how much better some one else might have done the same thing.

(III.) Much has been said both for and against prizes. That they are a stimulus to exertion can not be doubted. They are tangible. They are more constant in their influence than most other motives. The energies promptly and vigorously respond to them at any and all times. Again, they are most like the common aims of practical life. They are a sure and definite reward for a specified work. But the very fact of their universal adaptation places them at once in the category of a low grade of stimulus, inasmuch as that which is universally recognized as a stimulus must be primitive; and unlike the stimulus of the higher emotions, which begin early in feeble force, there is no growing development in the character of this stimulus. It always means one thing, nothing more. The advantages of the prize may almost be summed up in a single word, it is a cheap, effective stimulus, that does not require the constant anxiety, attention, and watchfulness of other motives. Its evils may be summed up with equal brevity. It is a stimulus of low grade, and the energy it excites is easily directed into any channel tending either to good or bad results.

If it be said that the temptations of the prize system are precisely the same as those of actual life, it may be answered that it is the office of the family and the school to shield the child against the temptations of life until strength is developed to meet them. It would poorly comport with this purpose, to introduce an artificial stimulus to do the work of temptations against which the school seeks to be a safeguard.

But still prizes are effective. If it is thought this advantage outweighs all the evils attendant upon them, they should be awarded, so far as possible, to stimulate progress or excellence rather than victory over others; and lead to further exertion in the same direction after they have been won. The last purpose is well met when money is given for excellence in a special pursuit, to be spent in further acquirements of the same kind as those by which the prize has been gained.

(IV.) The sense of responsibility is among the noblest of the emotions, and is a powerful stimulus to correct moral conduct, as well as to mental activity in general. Children should be made responsible for keeping their books and other things in order, and in place. Every child should have some responsibility placed upon him to draw out his better nature. Until a sense of responsibility is felt, a child does nothing except in a desultory way; and many persons never rise above this method of work, because responsibility rests so lightly upon them. They do things when and as they like; or, if inclination leads another way, not at all. This is very pure selfishness. Yet there is a delight higher than selfish pleasure, when one has the consciousness of holding great interests in his hands for the proper care of which he may be praised, and for the neglect of which he ought to be blamed.

(V.) Conscience is an intellectual feeling like the other emotions. It is not in place here to raise questions as to its origin or authority. It stands on the same ground with the other emotions. When we attempt to analyze a cognition, and determine what is right and what is wrong, the analysis may be imperfect, but this does not reflect on the reality of conscience, as it does not reflect on the reality of taste that beauty can not be analyzed and its elements pigeon-holed. On the other hand, it may be said for conscience that its first distinct recognition is lost in antiquity, its development preceded the development of mathematical sciences and the fine arts, and its discriminations have been more universally accepted as true than those of any other mental science or of physics. It is not to be forgotten that this is true, notwithstanding the fact that the seeming interests and the passions of men have thrown every kind of obstacle in its way, and men have continually wrought to break down the barriers it sets to vice and crime. It follows from this that conscience is to be developed early and held as one of the most trustworthy forces of the mind. It is to be developed both as a pleasure and a pain, and exercised in both these aspects in regard to one's own conduct and that of others. The clearness of conscience is not easily obscured, but its authority will prevail nearly in proportion to the weight it is seen to have with parents and teachers. Children may not practice the same violations,—this will depend on their inclinations,—but if others who claim authority over them do not recognize the authority of conscience, they will themselves pay little heed to it. It is a matter of the first importance that the supremacy of conscience should be held inviolable. It is said that Dr. Arnold would not consent that even the king should assume superiority to him in his school-room, fearing the effect such a treatment of his authority might have upon his pupils. The world has praised his wisdom. But the harm would have been slight compared with the moral devastation that comes when the authority of conscience is broken down by precept or example.

(VI.) It has already been observed that degeneration through the feelings is the most important cause of the waste of energy. Unless activity takes a permanent form, the energy excited is dissipated; as heat coming from the sun to the earth is dissipated, unless it develops the growing tree or ripening fruit, or becomes a moving force. The laws of the feelings show them to be volatile, and unless they develop forms of thought and action that fix the energy aroused, and make it available for future use, the activity will be lost. The order of development is given in the classification of the feelings, and the battle of life should be fought through when begun, from its beginning in pain and indistinct pleasure to the full and discriminating consciousness of the true and beautiful in being, and the fitting and good in action. It is a struggle upward, a reaching after that which is higher, nobler, better. Feeling will not grow into thought and action of itself. We must will to think and act. If we fail to put forth this voluntary effort, every thing that is done for us will be wasted. Even the emotions themselves will drop from higher to lower forms through the less and less discriminating forms, and finally end in unconsciousness. The physical feelings should not pass away until clear perceptions are formed. The pleasures of taste should develop a definite and clear understanding of the beautiful and sublime. The pains and pleasures of the practical feelings should not end except in action. When a practical feeling produces only a pleasurable sensation and no volition, the mental powers degenerate into irresolution and indifference. Literature has this distinction clearly marked. Some writers are stimulating, others sedative. An examination will show the difference to be due to the amount of discriminating activity excited. One class of authors so present thought that we distinguish it in its elements, which we put together into combinations new to us; while the other class present it either indistinctly or in forms already familiar. They may excite pleasure, but lead to no fresh thought. Under such an influence the mind loses distinctness of consciousness, and tends to inactivity. Longfellow sets forth this difference in his poem The Day is Done.

"Come read to me some poem,
  Some simple and heartfelt lay,
That shall soothe this restless feeling,
  And banish the thoughts of day.

"Not from the grand old masters,
  Not from the bards sublime,
Whose distant footsteps echo
  Through the corridors of time.

"For, like strains of martial music,
  Their mighty thoughts suggest
Life's endless toil and endeavor,
  And to-night I long for rest.

"Read from some humble poet,
Whose songs gushed from the heart,
As showers from the clouds of summer,
Or tears from the eyelids start."

. . . .

"Such songs have power to quiet
The restless pulse of care,
And come like the benediction
That follows after prayer."

Distinctness of thought is lost and the cares go with it. This is desirable to one seeking repose, but not to one who does not need rest.

(VII.) As the casual reading of certain kinds of literature weakens the intellectual vigor temporarily, so a habit of such reading will permanently lower the grade of the intellect. The mind should be stimulated with the strongest food it will bear. Not all the injury done to the young by reading is done by what are called bad books. Much of what is called moral and religious reading, by being deficient in the power of positive good exerts an enfeebling influence that is only less injurious than the development of vicious tendencies. This dilution of advice and instruction degrades them to the level of mere cant in their effect upon the mind.

(VIII.) A similar difference exists in the intercourse of different companions, and in the influence of different teachers over their pupils. Those who depend upon the sympathetic emotions mainly as a stimulus to exertion or right conduct, produce but a weak mind and a weak moral character. Children who are never required to do any thing unless they feel like it, will never feel like doing any thing that will give a vigorous and manly mind.

(IX.) The tendency of the feelings to dissipate intellectual force is well illustrated in the closing events of Mark Antony's strange career. He appears to have developed an ability at the time of Cæsar's death that would easily have placed him at the head of Roman affairs. He was an orator, a shrewd politician, and confessedly the first general in the army. But when the beauty of Cleopatra won his homage, he flung away his Roman pride, his love of dominion, his military glory, and all his intellectual greatness, and let the reins of government and the means of self-defense slip from his nerveless hands almost without a struggle. Had he been overcome by his enemy while bravely doing his best he would not have so fallen from the lofty pedestal of fame he had built for himself, but when his energies all degenerated into wanton pleasure, he was shorn of his strength and died ignobly.

(X.) Love is the climax of the feelings, and it should comprehend all the interests and command all the powers of the mind. To do this the objects of its devotion must be able to unite all the discriminations of the mind in harmony, and elicit all its active powers. Love of humanity, love of country, love of children, has led to the development of the noblest lives. But when mere pleasure becomes the end of love, it corrupts all the other powers, and the pleasure itself at last will pall. To be worthy to stand at the head of the feelings, love should be prepared to undertake all duties and endure all sufferings. Attachment to any thing seems a slight affair at first, but experience reveals the deeper truth in time.

I mocked at Love!
Love seemed a little thing:
"A small, blind god;" I said, "with golden wing,
For these poor poets to adore and sing;
Their stock in trade which has its price to bring."
I did not know.

I looked on Love!
Ah me! I mocked no more.
Within his hand a flaming sword he bore;
His eyes were great, and sad, and prone before
Him in the dust I lay, lamenting sore.
"Great Love," I cried, "Master forevermore!
I know, I know."

"Forgive," I prayed.
"No wings are mine," he said;
"My bleeding feet pass on with weary tread
Whithersoever I am sadly led;
The poet sings but when his heart has bled.
Dost thou not know?"

"I mock no more,
Great Love, but hear my cry;
Give me the pang, the woe, the bitter sigh,
Hear me in pity, hear me, lest I die,
Let me bear all, so Love pass me not by,
Since Love I know."

—*Mrs. Burnett.*

(XI.) That love develops in accordance with the general law of exercise, and that the exercise it requires is a voluntary service may be seen in the growth of patriotism. After a time of long continued peace, the emotion of patriotism will seem to have almost died out from amongst a people. But when danger threatens and there is a call to arms, the spirit of devotion to one's native land scarcely sets bounds to the sacrifices it is willing to make. It places one in vital relations with a circle wider than kindred, and with generations yet unborn who will not be unmindful of the deeds of heroes. Thus the development of the feelings to their fullest power and in their highest form, leads to the necessary recognition of a personality outside ourselves, worthy the exercise of all our energy in his service.

III. OBSERVATIONS ON SOME SPECIAL FEELINGS.

(1.) Medicines of all kinds stand upon the apothecary's shelf ready to be dealt out at the call of any customer. But some kinds of medicine may not be sold until they have been marked "Poison." In a manner equally striking some of the emotions should be marked whenever they are presented for use in education. Among these are those emotions of self-concern known as malevolent feelings. Their end is to do harm. Anger, envy, revenge, and so forth, are to be eradicated. While no panacea for the vices growing out of these feelings can be suggested, a careful study of the laws of mind in accordance with which they are developed will suggest many useful hints with regard to their treatment.

(2.) First, taking a hint from the Law of Growth by exercise, they may be checked by preventing their indulgence. It will be remembered they are practical feelings. They are not brought into complete exercise so as to secure a unified or permanent product except as they persuade the will to action. If they fall short of this, they drop like immature fruit, exhausting mental energy somewhat, but terminating in unproductive results. In many cases all possibility of accomplishing a malevolent desire may be so manifestly removed as to check the emotion. In other cases an effort fully made may be thwarted in its effect, and thus the malevolent pleasure expected will be prevented, and the tendency to repetition checked. When neither of these means can be employed, as a final resort some kind of punishment may be inflicted that will counterbalance the malevolent pleasure.

(3.) Secondly, a child may be kept away from things likely to excite these feelings. Whenever there is reason to fear the feelings can not be controlled, this should be done if possible, for their exercise is sure to develop a tendency toward their indulgence.

(4.) Thirdly, to avoid all causes that may excite these emotions would not be possible if it were desirable, and it would not be desirable if possible. These causes are the first to excite in a decided form painful intellectual emotions, and thus they answer the conditions of exciting intellectual activity. If we examine the history of mental growth, we shall see that these causes are in reality the first to stir the mind to intense effort. As one advances in years he ought to be moved by higher impulses, but the child must pass through the lower stages. It is not the same, it does not mean the same thing, for a child as for a man to become angry. The causes of such excitement should be used for a child's good. If properly used, they will lead to a higher development than can be otherwise attained. If in seeking to check the evil manifestations of these feelings they are so treated as to check all activity through intense fear or suffering from punishment, the mind will be dwarfed. The uncontrolled indulgence of passion is not to be allowed, but there will be some period during the excitement of the mind when its activity may be directed, and when it may make larger gains in moral and intellectual power than can be secured by any amount of mere instruction. Men of the strongest characters are often, if not generally, those who have been known in youth for the possession of strong passions. The earlier these can be subdued, the better, if subdued wisely, not brutally, for the longer indulged, the more they will dominate character, and they themselves are not only not useful,—they are positively harmful. But in seeking to suppress them the energy aroused should be turned to account.

(5.) Fourthly, the treatment of the malevolent feelings involves the consideration of two uses to be made of the mental stimulus that causes them. First, they may be so controlled and directed as to impress more strongly the value of their opposites; and secondly, they are designed to develop the higher forms of thought and emotion. The malevolent feelings arise from the sense of personal identity. A child's peace or happiness is disturbed; he has been struck, or he has fallen and hurt himself; this makes him feel that his personality has been invaded; he is crippled in his will, and his anger rises. Or, he sees another child enjoy some happiness or advantage denied to himself, and his sense of deficiency leads to envy. He is in possession of something of which he would be deprived if he should tell of all the circumstances about it; he thinks to defend himself by lying, and a spirit of mendacity springs up in his mind. In all such cases the child should be made to see that the gratification of his feelings would antagonize the better part of self, that they are inconsistent with his highest good, that they are at war with a personality he himself knows to be of more consequence to him than they are, that he ought to be above them, that they are unworthy of him. By contrast he may be made to see more clearly and feel more keenly the value of the nobility placed in his keeping. The strongest appeal that can be made to a child to lead it to confess a falsehood is, generally, a mother's love. It is the most pleasurable possession of his memory. When he sees how a lie will wound that love and make him unworthy to cherish its memory, he will suffer almost any thing rather than leave that stain upon his character. In the examination of cases arising in an extensive experience, it has been found that three times out of four, when every other motive has failed, an appeal to a mother's love has brought to the confession of falsehood. For the sake of the complete consciousness of contrast a clear confession of wrong should be made, for clearness of conception requires distinct forms of expression in general, and the mind is especially likely to hide in indistinctness a disagreeable truth. Worse than all is it to allow faults to be covered up by half-confessions, which are accepted as the whole truth.

(6.) A second use to be made of the stimulus to malevolent feelings is the development of the higher emotions. An injury that will excite anger may call forth the sense of justice. Perhaps it is the first experience that calls this important emotion into consciousness, and it gives tone and strength to this sense when once developed. That which excites envy may stir a healthy emulation, and arouse the most intense effort toward the highest possible degree of success and excellence. The very existence of envy is an evidence of the perception of a higher excellence of character or possessions than is attained by the envious child, and this perception may induce the desire to bring down the more fortunate child to the level of the less fortunate, or, on the other hand, it may lead to the formation of a high and noble ideal and to a struggle to reach it. The one tendency should be opposed, the other fostered. Not only does a restrained feeling which tends toward malevolence have a great value in bringing the higher emotions into consciousness, but it gives intensity to this consciousness, and renders the disposition to enforce one's judgment of evil more determined. Restrained anger gives a clearer consciousness of justice than any merely intellectual apprehension of it, and a proper spirit of emulation, or the enthusiasm kindled by witnessing illustrious examples of success in others is one of the most important elements of successful endeavor. In a similar way other malevolent feelings should be displaced by the higher emotions, and used, when aroused, to heighten noble and virtuous impulses. It need hardly be added that a teacher who is moved deeply by conduct that may excite such feelings as anger is recognized as a more positive opponent of wrong if he be self-restrained than one that is stolidly indifferent, but if he gives way to passion he instantly loses his vantage ground and places himself in the power of others.

(7.) Fifthly, there are other emotions which, although not malevolent, are little less liable to do harm, and they should receive a warning signal. Chief among them are the feelings of self-consciousness and sympathy. First, there are the feelings of self-consciousness, which belong to the general sense of personal identity. A strongly developed self-consciousness is a great weakness. On one side it is the fruitful source of vanity, pride, and rashness; on the other side, of diffidence, indecision, and superstition. These are all weak points of character which should be fortified and guarded. To think too much about one's self is likely to produce too great self-confidence or too great self-distrust. The victim of such thoughts will either become arrogant or fearful, and a half-believer in any thing rather than a whole-hearted believer in the highest conclusions of reason. Confidence in self should be cultivated and a due esteem should be given to the knowledge one has, but these should be mainly used to heighten effort and confidence in the value of attainments yet to be made.

(8.) The second of these feelings, sympathy, is the basis of the highest emotions, emotions that lead to the highest endeavors. But it is so much easier to stop with sympathy than develop an active benevolence that there is the greatest danger of expending all one's energy upon it, and bringing nothing good to pass. If a surgeon indulged his sympathy for suffering patients to the extent of unnerving his arm at the sight of blood, his surgery would even fall below a butcher's skill. Yet, in times of disaster, of trouble, of any misfortune, the masses of people indulge so much sympathy for the suffering that they can do nothing else. All their strength goes to it. There is no practical good in them. The number of those who can carry a cool head into places of distress and need, and patiently seek out the causes of misery, and apply the proper remedy is exceedingly small. This is not because of indifference. It is because sympathy has been rated at too high a value in itself, instead of being called the worthless rubbish that it is, when not trained to develop into deeds of practical friendship and love. To cultivate the emotion of sympathy without doing more, to read works that excite this emotion for the sake of itself, is dangerous. That class of literature that excites this emotion without leading to a clear discrimination of the character of the act or person sympathized with, and the reason for sympathy, is positively pernicious. Sympathy is not to be labeled "Poison," but the direction should be given, "To be taken with caution."

CHAPTER III.

WILL.

I. NATURE OF THIS FACULTY.

THE sympathetic nervous system responds to a stimulus and produces muscular activity, sometimes with consciousness, and sometimes without. Respiration, the beating of the heart, and reflex action in general are examples. But there are physical movements and mental activities which depend upon reflective consciousness, and the faculty that determines these activities is called the self-determining power of the mind, volition, or will. While the mind acts in a manner to justify this application of the term *self-determining power*, it is not to be supposed that it acts independently of all conditions. It must have knowledge and feeling, and knowledge implies an object known. The cognitions produce the practical feelings, and these act upon volition; but the will is self-determining in this, that it is conscious of freedom to act or not to act. The mind has the power to hold before itself a variety of elements, and choose for itself which it will unify in action. It is not the sole office of the faculty of the will to execute. It must decide what action to take; and, to do this, it must hold the other faculties of the mind to their work; and, to have a free choice, in a broad sense of the term, it must be able to restrain any particular action till all reasons for action are sufficiently considered.

2. It has already been shown that volition is the highest form of mental activity, and it might be inferred at once that the treatment and development of the will ought to occupy the most important place in Psychology and education. But while there are especial and elaborate treatises on the nature of the will, Psychologists give the will only a very meager and general consideration in its connection with the other faculties of the mind. In education it is treated only incidentally. It has had little distinct recognition either in the theory or the practice of education. The activity of the will is assured to a certain extent from the necessity of the case, but its development is not sought in the same systematic manner, nor with the same elaboration and intelligent purpose as the other faculties. The faculty of knowledge is developed step by step, with patience and perseverance. The feelings are cultivated carefully and anxiously. Let the taste and moral feelings especially claim what attention they will, the claim is always allowed. But the will is, for the greater part, left to itself. We ought to consider, on the contrary, that no mental activity becomes a permanent and valuable form that does not involve the will. Memory is strong in proportion to attention. The judgment is positive, and consciousness is clear and definite, in proportion to attention. But attention comes from an activity of the will stimulated by feeling. Other voluntary activities are the culmination of activities that have a beginning in the exercise of the lowest faculties, and they are needed to give value and permanency to the lower thought and feeling. We should not be content with securing mental activity, we should seek voluntary activity. This is required for the development of a strong mind. Unless the power of rational volition is developed a child may as well have been born a parrot.

3. The volitions have been defined as forms of activity terminating in desire, resolution, or endeavor. These have been shown to be three stages in the exercise of the will. To be complete a volition must culminate in a physical or mental effort to do something or accomplish some purpose. It has also been shown that the volitions depend upon the feelings, and that the feelings must depend upon knowledge if they develop volition. We must have some intellectual apprehension of an end in order to put forth a voluntary effort to attain it. The ends we seek to attain are called motives, and sometimes the desire is called a motive. Motives exist for us, and stimulate us to action, only in so far as we have a knowledge of them, and experience pleasure or pain in anticipation. When a child takes an orange to eat, it is moved to the action by a simple desire which the sight of the orange excites through the knowledge and pleasure reproduced from past experience. The pleasure remembered, and the pleasure anticipated are identified or unified in consciousness by the act of eating.

4. If a second child desires a part of the orange, two opposing motives spring up in the mind of the first child, the desire for the whole orange, and the desire to see the other child happy. These two motives struggle with each other for the mastery until the one or the other prevails. No action seems able to comprehend or unify them both. If the whole orange is kept, the benevolent pleasure is excluded; if a part is given away, the desire for the whole is excluded. But we found in studying the cognitions, that the mind does not rest satisfied with any form of intellectual activity until it identifies or unifies it. The same is true of the will. There is at first an utter failure to identify the two desires of the child in any act, and one or the other must be held only as an annoyance while the

other is gratified. If, now, we will look back to our treatment of objects of knowledge, we may gain some light on the correct method of procedure here. In the former case the mind was enabled to identify by making analysis or discriminations, until identical elements were found. Volition should proceed in the same manner. If a part of the orange is given away, an analysis of the results will show that the giving is not all to be reckoned as loss. There accompanies the act the pleasure of feeling that it is a noble thing to do. This pleasure is, perhaps, alone greater than the pain, and it could not be had without the sacrifice. Thus the desires now unified in the act of sharing the orange with another become greater than the first two desires would have been,—the desire for the whole orange and the desire to see a playmate happy,—even if they could have been united. With this solution the child is satisfied, if it can make the unification clear in mind. With other gratifications there may also come the reflection that, perhaps, eating the whole orange might not have been much if any better than a part, and that the act of sharing it may bring the same kindness to the giver at some future time in return. Many other results of the giving are also to be considered, such as the approbation of friends, and the esteem and good-will of the child receiving the gift. In this way it is sought to analyze all that is involved in the act of giving, which in the first place seemed to exclude so much good, and it is found that there are few if any elements in the two original desires that are really desirable which are not unified in this act.

5. But if the whole orange is eaten, the other pleasure is excluded; and when an attempt is made to reconcile the benevolent desire with this act, the effort fails, and finds no incidental pleasure to make compensation for the ex-

clusion. Moreover, the gratification of eating the whole orange would be short, at best, while the other pleasures would be enduring. If the child will make the discriminations spoken of, action will be determined in favor of the benevolent motive; but if it will not consider, if its will is determined without any such discriminations and unifications, it will almost certainly choose in favor of the course which will give the least pleasure, and which has the weakest real motives to justify the choice.

6. We are apt to think of the will in too narrow a sense. We think of it as a single effort of desire, resolution, or endeavor. It will be noticed that volitions have been defined above as activities ending in these forms. But the end is not all there is of it. The will is concerned with a whole series of activities which ought to be held in consciousness, analyzed and united in a result that will embody a complete unification of all the elements, or, if not all, of as large a number as it is possible to combine with harmony. The development of the child's will in the case supposed, consists in leading it to such an analysis of motives as brings the highest motives to bear together upon action with their fullest force.

7. When the child is older, the feeling of responsibility, the sense of right and wrong, love of friends, and all the higher ends of life will be added as motives. But at every stage of progress the will is developed, in a large sense, only when it is exercised in holding desire in check until motives are thoroughly analyzed, and in unifying in view of this analysis those that ought to prevail in action. This ability is essential to choice. Only in so far as variety is perceived, is choice possible. The freedom of choice implies ability to hold discriminations in consciousness without unifying, and in restraining decision so long as there are discriminations to be made. One may

say he makes a free choice when he is not forcibly restrained by another. But this is a low and narrow freedom. If a child is blind folded and told to choose from a basket of apples of different varieties the one he likes best, he will acknowledge his inability to choose. The hands are free to take, and the apples are within reach, but there is no ability to gain a knowledge that is required to make a comparison of desires and free choice possible.

8. The tendency to hasty unification without sufficient and careful discriminations was seen in studying the General Law of Mental Development, and again in studying induction, but it is particularly strong in the exercise of the will. It can not be too strongly impressed upon the mind that decision and action should embrace the broadest view of motives, and that it is unwise and harmful to yield the will to narrow and ephemeral desires and low purposes, and leave out of consideration the higher motives of action, or neglect to search them out and know what they are. Action that does not embody or unite all the variety of motives possible is not the highest expression of will.

9. We are now prepared to see more definitely what is meant by rational volitions. Under the head of attention it was said that the cognitions produce feeling, and feelings stimulate the will, and the will directs the attention; that is, it renews the energy of cognition in a particular direction, and again feeling and volition follow in turn, and the series of activities is repeated until consciousness is complete. We have also seen that rational activities are the highest of the cognitions. Rational volition, then, is the exercise of the will in the analysis of rational motives for the purpose of securing the highest possible unification of these motives, which are then embodied in action. This is the highest exercise of will.

The complete development of this faculty involves the ability to discriminate and make the highest and most comprehensive unification of motives in decisions, and also the abilility to enforce every determination with vigor and promptness of action in all the variety of cases likely to call for one's consideration.

10. If we apply the Laws of Sequence to the will, we shall see why its claims have been so slow of recognition. In the order of dependence it is the last faculty brought into exercise. We might expect it to be fully developed only late in the history of the race and in the growth of the individual mind, and, naturally, it would be late in securing that clear understanding and positive recognition which its importance demands. It may seem at first sight that the will has not been later than the other faculties in securing recognition. Perhaps not in securing recognition, but let us see about a just recognition. In so far as the will is dependent upon other activities, when it makes a choice it ought to take into consideration all the knowledge and feelings which have ever been connected with the individual case presented, and choose that combination in favor of which there is the strongest force of deliberate reason.

But whence come wars? Surely not from a failure of men to recognize their mutual dependence upon one another to secure their highest good; but from yielding to the impulse of lower desires, which have a stronger determining power than the higher motives, because the power of self-control in nations and masses of men has not been developed sufficiently to hold the immediate motive in check, and give due weight to distant and broader motives. So weak are the higher motives in controlling national action—and this must be considered as most accurately measuring the will power of the race—

that national decisions have been almost uniformly determined by the most selfish considerations. No government could exist for a day, and claim respect, that willingly allowed the same license to its citizens in their dealings with each other which it claims for itself in dealing with other nations. Each nation excuses itself, not on the ground of ignorance, but on the ground of necessity in that other nations will act from the same selfish motives. The armaments of Europe are a recognition of the degree to which the nations maintaining them, distrust the ability of the most highly civilized peoples to direct their conduct by those principles which all acknowledge would lead to the best results, and which ought to be supreme.

If any one supposes individual will to be better developed, let him ask himself how much more men in their personal relations would act in accordance with the higher principles of conduct than nations if it were not for the power of government to enforce conformity to those principles that are deemed best. As the cognitive faculties or the feelings may be developed in one direction and left feeble in all other directions, so the will may be strong in the direction of one class of motives and weak in all other respects. It should be the object of education so to develop the will as to enable one to bring all his powers into action under the influence of the highest motives. Only when this is done can it be considered as rightly developed, and when we consider what external force has to be substituted for it in national control, and in civil and commercial life, it must be evident that, however slow the development of intelligence and feeling may be, the development of the will is still slower. The importance of this stage of mental development should receive more careful consideration. Action should be enforced as the end of knowledge.

II. APPLICATION OF THE LAWS OF EXERCISE.

The Laws of Exercise to secure breadth, strength, and facility have an important application to the development of the will.

1. BREADTH OF ACTIVITY.

(1.) The mind should be exercised in seeking reasons for every thing that is to be done. Reasons may conflict with each other, and require careful analysis to discover the motive that ought to prevail. The motives which weigh with a well-disposed pupil in case of misconduct on the part of a fellow pupil, are often of that conflicting kind. There are duties to fellow pupils, and duties to the teacher and school. It is not always easy to decide which motive should rule. There should be an effort to impress upon the minds of pupils in general the importance of putting aside narrow personal motives, and acting on the highest principles. There should also be an effort to analyze the interests that are involved in misconduct of various kinds in such a way as to turn the feelings of all the well-disposed towards the support of right and against wrong doing. All the desirable elements of the various motives presented should be made to unify in sustaining the right. There can be no doubt that they would so unite if they could be seen in their true light. Wrong-doing should have no sympathy from the right-minded. These two characteristics, the desire to act on high principles in general, and sympathy with the right, should be strongly developed in every mind. When this is done there will only remain the difficulty of determining the cases that require action. On this point there is a great difference of opinion in different schools, and different communities. Teachers should be careful to avoid pushing the claims of their side too fast and too far in demanding the co-operation of the pupils against their fellows. But it may be said that the tendency of motives in general is to secure more and more the active co-operation of all in maintaining the general well-being against wrong-doers the higher the character of a school or community. If a pupil is called upon to give evidence between two pupils, or in the case of a wrong affecting the general interests, much discretion must be exercised, but on the general principle of such a requirement the teacher may appeal to the common and settled judgment of men as manifest in the requirements of the law, that the state or any individual may require the testimony of all who can give evidence to their advantage. If the right-minded cause it to be understood, as they ought, that, while they will not be spies and mischief-makers, they can not be held responsible to shield wrong-doing, there are but few children who will not confess readily enough to their own faults if rightly approached.

(2.) There may be a great variety of motives, not so much conflicting with one another, as leading in opposite directions, so that all can not be acted upon at the same time. If a child is given his choice between having a ride and playing with some mates, one or the other motive must be put aside. When many motives are presented at the same time, it is not an easy thing for the mind to weigh them fairly, and decide in favor of those that ought to have most influence. When a young man is deliberating upon the course he shall pursue for his life's work, it is difficult to determine the relative importance he ought to give to different ends presented to him. If he is to choose wisely he should be able to hold all the motives easily in mind for comparison, and should be able to take a broad view of them so as to give a true value to distant purposes. It is much easier to decide from some accidental circumstance, or in view of some desire that is strong because the gratification is in sight, but the will should be trained to patience, to endurance, and to the use of the highest reason in such decisions.

(3.) Motives may differ from each other in degree of certainty. A motive of little weight may prevail against a strong motive if the latter is uncertain. The mind should be able to analyze the conditions on which the stronger motive depends, and not yield to the tendency to take the easier course, and to decide for the weaker motive, rather than be at the pains to search out the true state of the case with regard to the stronger motive.

(4.) For reasons like these, and for other reasons, the mind should be trained to hold desire in check, and compare all the variety of motives it can find, before making its decision. But a decision should be reached and acted upon, or a habit of delay may be produced that will be as bad as many ill-advised but vigorously executed plans.

2. STRENGTH OF VOLITIONS.

(1.) To avoid indecision, strength of will should be cultivated. One may be able to analyze motives, and hold a great variety of them before the mind, and appreciate motives of different kinds, without the ability to concentrate them and make them fruitful of results. A habit of forming decisions and holding vigorously to purposes which have been formed is a very important element of character. In accordance with the second Law of Exercise, strength is cultivated by undertaking and carrying to final completion those duties that require the severest struggles. Hardships endured, obstacles overcome, and temptations resisted, give strength to the will. The will is also strengthened by doing one's work thoroughly. If we stop in any work we have to do before it is finished and made as complete as we feel it ought to be made, our will-power is dissipated; but the completion of every thing in the best possible manner strengthens the will.

(2.) The will may be strong in some directions and weak in others. For this reason we should not be satisfied with the ability to carry out determinations in one line of action. Strength should be cultivated in connection with breadth. The Spartan youth who could keep a fox concealed under his garments, though it tore out his very vitals, rather than betray his theft, undoubtedly had a strong will. Spartans made irresistible and unconquerable soldiers. But the Spartans were not efficient in many things. They were willing to spend all their energies in the display of physical courage. They could not bring themselves to see the dangers that threatened them, with the rest of Greece, in consequence of civil dissensions. Stubbornness and a dogged disposition should be corrected by the development of broader and more varied purposes.

3. FACILITY OF WILL.

Facility in making decisions and in executing them is often of great importance. The third Law of Exercise is naturally applicable to the development of this power. The danger to be guarded against is a tendency to rashness and indiscretion. But there are classes of cases that should admit of no hesitation. In these the mind should be thoroughly trained to prompt action early in its development, and correct habits strongly fixed. When cases of right and wrong are clearly presented, there should be no indecision. There should be no searching after other motives to counterbalance the motive of right conduct. So a habit should be cultivated of yielding to the motives of reason rather than passion, and motives of permanent advantage rather than a less important present gain.

III. SPECIAL LAWS OF VOLITION DEPENDING ON SEQUENCE AND CORRELATION.

LAW I.—THE ACTIVITY OF THE WILL MUST BE EXCITED BY THE ACTIVITY OF THE FEELINGS.

First Proof.—The cognitions must be excited before the will, but these alone can not excite volition. Unless there is a feeling of pleasure or pain, there will be no desire either to obtain or avoid an object of cognition. If there is no desire, there will be no resolution; and if no resolution, no endeavor. The need of feeling becomes less as the will is developed, but it must exist in some degree or there will be no volition.

Second Proof.—If we consider volition in its relations to the other faculties individually, we shall find the Law true in each case. Perception must excite feeling, or the object perceived will not draw attention so as to be brought into clear consciousness. In the same way it has been shown that exercises of memory, imagination, and reasoning produce feelings which lead the will to direct the energy of the mind to the renewal of these activities again and again until consciousness is made complete. The feeling may be slight, but pain, to the degree of uneasiness at least, and other low grades of feeling, like those of curiosity, the sense of power, and personal identity, may always be traced with as much clearness as consciousness itself.

OBSERVATIONS.

(I.) The Law gives double force to what has been said in favor of the effort to excite interest in study. It was argued before on the ground of its increasing the amount of activity. It is argued now on the ground that the renewed activity is voluntary, and that it thus leads to more permanent results through the exercise of the highest faculty of the mind. It may be well here to recall the remark of Humboldt that the value of a study is in proportion to the interest it excites. This can not be maintained in comparing the value of different truths; but it is sound and highly important when applied to study as a mental exercise.

(II.) The Law of Degradation and Dissipation finds an important application here. The feelings may be excited to a high degree without producing any voluntary activity. Unless the pleasure is such as to lead to voluntary efforts, the energy aroused will be wasted. Dissipation is brought in either of two ways; first, cognition leads to feeling and the activity stops with this; or, secondly, an attempt is made to excite to resolution by higher motives, and then an appeal is made to the lower and more intense feelings, and in these the mind is allowed to rest.

(1.) Dissipation of the first kind is produced when the practical feelings are excited with no practical object in view. It is the order of nature that sympathy and affection should be developed in a child as mere feelings before they will lead to acts of benevolence and kindness. But when the child's nature has been developed so as to secure the display of these feelings, the exercise of them without a practical object of care, or a practical service in view is a dissipation.

(2.) The second form of this dissipation is produced when one begins a lesson by presenting a practical end and closes with an appeal to the feelings. A moral lesson, for instance, begins with the emphatic declaration or illustration of the importance of some high purpose, and ends with a farce. Is not this the order of many an exhibition, lecture, or theatrical performance? Is it not the order of many a sermon to begin with the practical, and close with the emotional? The following criticism once made upon the treatment of the passage, "Wherefore, seeing we also are compassed about with so great a crowd of witnesses, let us lay aside every weight, and the sin which doth so easily beset us, and let us run with patience the race that is set before us," sets forth the error of this method clearly. There are three things to be considered, the approbation, the preparation, and the race. The order in which these are presented in the passage is the natural order of development, and the series ends with the intensest degree of action. The idea of the race should be permanent. But many a declaimer would begin with the end to be accomplished, setting it forth before presenting any adequate inducement, and end with a contemplation of the delight of the expected approval, entirely forgetful of the race by which approval can alone be gained.

(3.) It was said of Demosthenes, that, while other orators left their hearers astonished at their eloquence, the Athenians went out from his presence saying to each other, "Let us fight against Philip." Every one who reads many of the orations of Demosthenes must be struck at the uniform absence of appeals to the feelings in the peroration. In following the true order of development, each activity excited helps to the next step; but in following the reverse order, if any success is gained in arousing the mind to resolution in the beginning, the effect is dissipated in the more pleasing and easy play of the feelings excited at the close.

Law II.—The Grade of Voluntary Activity will be as the Grade of the Feelings.

First Proof.—It is an accepted truth that motive or intention determines the character of an act. The laws of the land recognize this, both in criminal cases and the interpretation of contracts. But there is a feeling intermediate between the external motive and the act, and this interprets the character of the motive and determines the act. The motive is named as giving character to the act because the feeling can not be seen in itself, but it is implied, and may fairly be inferred from the act.

Second Proof.—Acts are classified according to the feelings that excite them. An act is called moral when it is induced by moral feeling. It is called intellectual when excited by the contemplative feelings. It is called selfish when excited by selfishness. It is possible for one to attain high eminence as a writer, a musician, or worker in any line of activity, and have no heart, as we say. But in such cases there is a subtle element which a sensitive person will always say is wanting. Proper feeling is required to produce the perfect work. Religious, patriotic, filial, social acts require, each for itself, feelings that belong to no other kind of actions.

Observations.

(I.) There is not an act of life, perhaps, that is not prompted by a variety of motives. In the act of studying, a child desires to learn, to obey his teacher, to please his parents, and to gain the approbation of friends. Perhaps the offer of a prize may be added to these motives. If he is asked why he studies, any one of these motives may be given as a true answer, but not any one will completely account for the act. The energy expended will be heightened in value in proportion to the character of the feeling most efficient in exciting it. The motives that will be effective depend upon the mind to be stimulated, and the highest motives that can be used should always be called into exercise. If a high motive finds only a faint response, it may be developed by use and by making proper discriminations. In urging a choice of motives, those should be selected which are found to be the highest that can be appreciated.

(II.) In cases of bad conduct there are many motives, as in other cases. It is neither just nor wise to charge the worst motive of them all with more than its due share of influence. The worst motives may be pointed out to excite an aversion to them, and they should not be excused because an offender is able to point out some better associated motives; but after a clear analysis of all the motives it should be the endeavor to develop the feelings that will prevent such action, and strengthen correct motives. It is not fulfilling the responsibility of a teacher to say that a child ought to have such and such feelings; he should seek by every means within his reach to cultivate the feelings which he thinks ought to exist. This can be done effectively only by inducing such action as shall call them into exercise. The great superiority of Dr. Thomas Arnold in educating boys consisted in his ability to direct their conduct in such a manner that their better natures found expression; and before they were fully conscious of the motives that controlled them, they had a variety of experiences in which they could discriminate the value of high and noble impulses.

LAW III.—COMPLETE DEVELOPMENT CARRIES VOLITION THROUGH THE THREE SUCCESSIVE STAGES OF DESIRE, RESOLUTION, AND ACHIEVEMENT OR ENDEAVOR.

Proof.—There may be three cases.

(1.) A person may desire something which he finds no means of obtaining, when volition stops with desire. He seeks for some means of gratifying his desire, but finds none which can serve as a purpose of resolution. An astronomer might have a desire to visit one of the planets. However strong the desire is, he can not resolve upon any plan for effecting the object, for he sees no means within his reach. That he has the desire, however, and that the state of mind is that of an incomplete activity, are both manifest from the fact that the object of such a visit frequently recurs to his thoughts, and he often tries to imagine what conditions would make the attainment of his desire possible.

(2.) Desire may pass to resolution, and volition stop there. That this activity is not complete volition is manifest in this, that resolution has no other end than some action, and desire must either continue in the mind holding it in an unsatisfied state, or dissipate the energy by which it was produced when it ceases to hold clear discriminations in consciousness.

(3.) Resolution may terminate in action. In this case the mental activity is complete. All the elements of thought and feeling centering in desire are unified in the result so far as they can be comprehended in the unification. Even if some other action is discovered later that would have unified a greater variety of desires, the act performed is the end of all that is involved in this volition, and other volitions must follow if different results are sought.

Observations.

(I.) The will has now been found to be the highest faculty of the mind, and action or endeavor the highest development of the will. To this conclusion we have come by stages of steady progress, and the proofs are various and united by links and interlacings that can not be sundered or separated. When Demosthenes was asked what is the most important element in oratory, and replied, "Action, action, action," who can tell how deep his meaning was? He is said not to have sought dramatic effects by physical action, but every sentence of his orations had action for its end. If applied to this feature of his oratory his reply would be strikingly pertinent. But in the view of the will here set forth his words have a profounder application still. Action is not only the end of oratory, but the highest end to be sought in every attempt to develop the human mind.

(II.) Children, from the beginning of their education, should be trained in the habit of doing. Manual training and industrial education are attracting the attention of many educators with the end in view of teaching how to do useful work. Without entering upon a discussion of these methods and their merits, and with the fullest recognition of the fact that they have many merits, it must be acknowledged that there are practical difficulties of finding means sufficient in variety and extent to meet the requirements of all occupations; and this fact greatly restricts the application and diminishes the value of these methods. But there is a broader view to be taken of the industrious habit, and the means available for carrying out this broader view are varied and common enough to meet all cases. This view is the recognition of the value of all action in developing the highest power of the will. A much broader range of actions than can be made to contribute immediately to practical results is adapted to accomplish this end.

(III.) Every relation in which a child is placed involves the possibility of some action. Acts of obedience, acts of kindness, self-help, keeping things in their places, care of one's person, clothes or playthings, performing a task, whether of learning or labor, play that has a purpose in it, all these are ends in the attainment of which the will develops the power to do. Such ends are not only more common and available, but they are also better appreciated by children than what is called profitable employment. There is no doubt that practical usefulness is a wholesome exercise, and that the habit of work with such an end in view ought to be cultivated in childhood. But there is danger of producing narrow minds, and of making children prematurely old, if this is pressed too far. But one thing should be insisted on in every case, and that is, that every child should be doing something that will call forth action in view of fixed purposes.

(IV.) Some children will always be active, and need only to be directed. But many more are naturally indolent. Teachers and parents should begin early to set these to work, and stimulate voluntary effort. Regularity of employment in study or manual work is an important element. Stimulating some natural desire by an object which it will cost an effort to gain is a method of development. Work which a child feels it is right and necessary to perform is a useful stimulus. Few boys who are compelled by circumstances to help in maintaining the family of which they are a part grow up inefficient men. They may often fall below their highest possibilities from lack of the advantages needed for mental improvement, but habits cultivated by the necessity of toiling for a livelihood will save almost any boy from growing up a burden upon friends or society. But a large proportion of boys who are not compelled by any necessity to toil, grow up to be useless men, to spend more than they earn, not so much because they do not know a trade or useful business, as because they have no will to do any thing. If they had the will they could learn, but they are not able to set themselves about any thing with a purpose. The reform which manual and industrial training seeks should be broadened, and if parents and teachers could understand the importance of this broader purpose, the effort required for making it a success would be put forth at once in every school and household. This effort will cost thought and care, not other great expense.

(V.) When cases of the indolent poor are examined, it is often said they are without ambition, they have no motive in life. This is but another way of saying the development of their wills is defective. If they had the power to hold their minds to thought, to analyze the motives life offers, and to act upon them, there would be no lack of inducements to exertion. We say we can not understand why they are so indifferent, and content to live with such low and poor enjoyments, when they might easily multiply their comforts and pleasures by using the means within their reach. They know much better than they do. If we will recall what has been said of Sequence as applied to the will we may find the explanation. The will power in them has not reached the stage of development gained in intellect and feeling.

(VI.) Achievement is a difficult act. One is easily discouraged at the magnitude of a great undertaking, and the effort to do is degraded to resolution, resolution falls back on desire, and desire sinks into feeling, and in the feelings all energy is dissipated. The final stage of accomplishment is the highest, and in sight of the goal every nerve should be stimulated to its greatest effort. At this point brave men are willing, like the sailors in the race of Virgil, to barter their lives for victory. Let it be understood there are many prizes in life's contest. Not they alone who come in first receive a palm, but all they who strive nobly and come to the goal at all. Strength is gained in the consciousness of achievement, and this prize should be daily sought and won.

(VII.) But to stop and dally with resolution in the face of an undertaking, is to put one's self on the way to giving up resolution, and is weakening to the will. Yet it would not be too much to say that most of the resolutions of most persons either end in failure, or, at least, fall below the effort required to gain the full results originally aimed at. It is impossible for the will to maintain an activity of consciousness that will hold distinctly all the motives of which we sometimes have glimpses, and the resolutions formed in our highest states of consciousness are insensibly degraded and we are satisfied with lower ends, scarcely feeling our loss. To stop habitually short of endeavor breaks down the power of resolution, and weakens desire, and saps the very foundation of will.

IV. FORMS OF UNITIES OF THE WILL.

The forms in which the will makes its final unification of discriminations may be classified as Language, Art, and Conduct.

I. LANGUAGE.

(1.) Language is synthetic. The word is a unity, the import of which is determined by the discriminations that have been attached, one after another, to the sound or form in accordance with some principle of unification by which language is developed. The sentence is a unity in which the subject is identified with the predicate.

(2.) Language is man's highest expression of the consciousness of truth. What is known as natural language, such as gesture, pantomime, and so forth, may represent some phases of truth more vividly than words, but it can never present the variety in unity which is expressed in words, and if the meaning of the sentence were made as vivid as the gesture the sentence would be the stronger. What modes of unifying thought a child may have before it learns to use language we can not tell, but the probability is that little progress is made by it in thinking, and when a language is learned all other modes are forgotten, if any have existed.

(3.) It is not the sole purpose of language to express thoughts to others. It is the form in which the unification of thought is developed most clearly in the consciousness of the person using the language. The mind can not use objects themselves, even pictured by the imagination, with sufficient facility to develop thought. It requires some more convenient means that can be used as a representative of objects. The parts, qualities, and actions of objects are representatively unified in language, and this means the mind is capable of using in bringing out thought clearly in its own consciousness.

Law I.—Some Activities of the Will Terminate in the Unifications of Language.

Proof.—In a large sense, at least, language is artificial. It makes little difference what language a child learns, one is no more natural than another. A term expresses for him only what he has unified in it. No part of language expresses thought that has not first been put into it. In thus unifying thought in language each one must exercise his own will. When this unification is made with clearness of consciousness, the mind seeks no higher expression of truth.

LAW II. — THE UNIFICATIONS OF LANGUAGE ARE AMONGST THE EARLIEST DEVELOPMENTS OF MIND.

First Proof.—In childhood, in nations, and in the development of the race, there is uniformly a development of language as the earliest exhibition of the exercise of the power of connected thought. Not only has no community ever been known to exist without a language, but the development of language never falls behind other manifestations of intellectual progress in the stage of its development.

Second Proof.—In our own consciousness we are aware that our struggles after truth begin with an attempt to identify the activities of the mind in the form of language. A new word mastered, a new form of reasoning made familiar, is a new revelation of truth.

Third Proof.—There are many other striking evidences of the dependence of thought upon the development of language, but there is one of such conclusive character that it alone should be deemed a sufficient demonstration. It is the case of Laura Bridgman, already referred to. She was surrounded in childhood by all the ordinary stimulants to mental exercise, but nothing seemed to unseal the springs of intellectual life. Her later development shows that she had an abundance of native mental power. When her mind took its first start, at the age of eight, she received no new sense. At this time, as always from infancy, she was dependent almost entirely upon the sense of touch for knowledge of the external world. What change occurred to give her intellect its first impulse? Others had communicated their thoughts to her, and she her thoughts to them, so far as she had had thoughts. It can not have been that she now first became conscious of the fact of communication between friends. There is but one fact to which we can refer the change, however we explain the causal influence. Her new friend and teacher brought her to associate the forms of a few words with objects which they represented. But the words were only objects to be placed with other objects at a given signal. The words were taken to pieces, and at the very moment when she became conscious of the power to put the letters together and make the words, she showed signs of intellectual life. From this time forward intellect and language grew together. There was here a synthesis of differences in which the unity was distinct, and the elements also, not only distinct in themselves, but held in distinct consciousness as making up the unity. The mind could pass from the unity to the elements and from the elements to the unity with sufficient ease to give pleasure to the mere exercise of voluntary thought. There is nothing else that will so unify variety in conscious unity of thought as the use of language.

Observations.

(I.) This Law shows the importance of cultivating the power of language. It must be developed not only in the beginning of intellectual growth, but at every step of progress. The Law is broad and applies to the initial step of every new development of thought in individuals and nations. Civilization and language go hand in hand. A race lives while its language lives. The state of a nation's literature represents the stage of its life. The ornate languages of Asia truly represent the Oriental imagination. The subtle language of Greece represents the keen intellect and fine feeling of the Athenians. The methodical language of Rome represents a nation of law.

(II.) It will be seen from this Law, in connection with the Laws of Consciousness, that the language in which thought is unified is to be used to aid in bringing the unification into its distinct forms in consciousness. While a teacher should guard against supposing that words alone are sufficient to develop thought, he should seek to make himself expert in their use as helps in the development.

(III.) It must not be overlooked that to develop thought by language is a voluntary act. It requires strong exercise of the will to hold discriminations of perception, memory, reason, and so forth, with distinctness, while unification is perfected in the form of a sentence. It is not enough for a pupil to say he has the idea. If he has it clearly in mind it should be in the form of words. It is a dissipating indulgence to stop short of putting ideas into this form.

(IV.) Logical and complete forms of expression should be insisted upon, if the power of reasoning and clearness of thought are to be cultivated. There is perhaps more unwise indulgence in these respects than in any other direction in class recitations. If a thought is well enough expressed for a teacher who knows what ought to be said to guess at the meaning, this is often counted as sufficient. Pupils thus indulged have so little self-control, that they will almost invariably break down if pressed to state exactly what they mean.

(V.) As language is an aid in unifying variety, from the fact of its comprehending so much in simple forms, its usefulness is increased in proportion as it is made simple and concise. Formulas for explaining Arithmetical examples and Grammatical relations are often a hindrance rather than a help, from containing so much that has no application to the particular case. They may be useful helps, but when used they should be so mastered that any words that are not required will naturally be omitted. It should be an invariable rule that no form of words should be allowed that does not exactly express the thought intended.

II. ART.

(1.) The word art here denotes the use of means to do something, or create some manual production. Sailing a vessel belongs to the art of navigation; making a table, to the art of carpentry, and painting a picture, to the art of painting.

(2.) Arts are classified as useful and ornamental. The useful arts have for their end the doing or producing of something that will contribute to physical well-being; the ornamental arts seek to please the taste. Taste is employed in the productions of the useful arts, and the ornamental arts require the exercise of a manual skill that has no especial reference to taste. Both kinds of art contribute to happiness.

Law III.—Some Activities of the Will Terminate in Art.

First Proof.—By the exercise of the will we observe actions and objects of sense-perception until we form conceptions of them, and by a still further exercise of the will we reproduce them, or make objects like them. In the same way we invent new forms which we embody in concrete products. In these cases there are two distinct exercises of the will; in the first, the will unifies by holding the energy of the mind to the formation of conceptions, which are unifications of knowledge; and in the second, the will uses the physical powers for action. In either exercise the demands of the mind for unification may be satisfied, but the form of the effect depends upon the purpose which actuates the will.

Second Proof.—By the exercise of the will we unify æsthetic discriminations in the form of artistic products. The demand for unification is satisfied if the product answers the requirements of taste.

Law IV.—The Unifications of Art are Higher Than the Unifications of Conception.

First Proof.—It is a common experience for one to think he knows what a thing is, or how to do a thing because he has seen the thing or the act, and then find himself very ignorant when asked about details. The mind is satisfied with indistinct and partial discriminations and unifications, but when the attempt to do or produce a thing is made, the elements must all be present and in their places, or the product will reveal a lack of unity.

Second Proof.—That the works of ornamental arts are higher unifications than the conceptions of them before the effort of production, is manifest not only in the fact that the conception is more and more perfected by the requirements of the product as action progresses, but also by the fact that in general little advancement is made in the understanding and appreciation of works of art unless one does something in the way of producing them. Some enjoyment of them may be had but not of the highest kind. The conception of a product involves only a knowledge of its material cause, what it is; to produce, we must also know how it becomes.

Observations.

(I.) Action and production applied to useful arts have three advantages, each one of which makes it important that children should be early trained in habits of doing and making things. First, these results appeal to the senses, and are more easily appreciated than mere conceptions. Secondly, they are higher and more permanent unifications. Thirdly, they require the more complete exercise of the will.

(II.) The contemplative feelings have not been classed with the practical emotions, because activity is not their end. Yet in the manual process of producing artistic work, these feelings are developed to a higher degree than simply in the act of contemplation, because the discriminations are of necessity more various and exact. These discriminations can not be unified in language. The beauties of the beautiful and the sublimity of the sublime can not be set forth in words. The eye and ear must find variety not to be expressed by articulate speech, to produce these feelings. If a more perfect appreciation of works of artistic merit is to be produced than comes through the examination of these works, it must be by exercise in drawing, designing, painting, and so forth.

III. CONDUCT.

By conduct is meant action directed by a consciousness of our relations to other conscious beings, or by duty towards ourselves. It embraces all those actions that are excited by the practical feelings. It is involved in business; in duties to the state, the family, and society; and in the principles of religion and morality.

Law V.—Some Activities of the Will Terminate in Conduct.

Proof.—Conduct requires an activity of doing and production which imply an exercise of will, and also a motive excited by the practical feelings, to make it conduct.

Law VI.—Conduct is the Highest Unification of the Human Mind.

Proof.—It has already been shown that doing is a higher unification than conception, and that production is a higher unification than observation or contemplation. Conduct includes these activities, and adds the elements of motives that must be discriminated amongst the most varied and complex relations of which we are conscious.

Observations.

(I.) This Law emphasizes the observations made concerning the importance of conserving energy by carrying out the purpose of the practical feelings into action. It is not only conserving energy, but it is developing the highest energy of life.

(II.) The term practical is generally applied to activities which have only a physical end in view, or at least the term does not seem to imply any end beyond this. The analysis of the feelings and the Laws of the will show a much higher practical end. The lower material ends are important enough in their place, they are indeed essential, but they are not all; and as we rise in the scale of being they become less and less in comparison with our increasing consciousness of the higher practical ends.

(III.) Notwithstanding the great complexity of the unifications of perfect conduct, its development begins almost with the beginning of the lowest rational action. But care should be taken not to attempt the application of complex principles to children. There are many simple principles of conduct to be enforced, and conformity to these should be faithfully required.

(IV.) From the last Law we may infer that study which leads to an analysis of the relations between conscious beings, stimulates the practical emotions, and directs to the most perfect conduct, must always have the highest place in the development of mind. This does not exclude the principles of physics but embraces them, and seeks to unify them with the knowledge of higher relations. Those who treat the lower unities of material forms and the higher unities as antagonistic, who think that physical science and the service required by the highest practical emotions are inconsistent with each other, and whose intellectual unities are all confined to one of these ends without thought of the other, while they may not formally deny the existence of either class of discriminations, yet narrow their own minds to holding in consciousness the variety involved in one part only of experience. Those who seek to identify the practical emotions under the phenomena of matter, logically exclude from their unifications the higher elements of motive, and the result of their effort must be one of the lower unities of knowledge.

(V.) On the one hand we can not consistently exclude from complete knowledge either the lowest discriminations of matter or the highest principles of conduct, and on the other hand we can not unify the discriminations of motive under physical forms. It only remains, then, so to develop the practical emotions and the resulting activities of the will as to make them include the most perfect discriminations of material phenomena, and use them for the highest purposes of life. The peculiar value and importance of using material forms and relations in developing the mind have been noticed under the Laws of Physiological Relations and Reflective Consciousness and elsewhere. There is a tendency to give larger place to this element in education. But there has been little effort to unify this knowledge under the higher relations, and unless it can be made to contribute to better conduct amongst men and nations its real value will be much diminished.

CONCLUDING CHAPTER.

IT remains to sum up in a general way the more important practical lessons which our science teaches.

I. COMPEL ANALYTIC ACTIVITY.

1. This lesson is found on every page of the preceding work. We began with it in our Introduction. There we found it the lesson of common experience, and raised the question of its fundamental importance in the development of thought. Later it was found to be at the beginning of all mental activity, and its essential importance found statement in the General Law of Mental Development. The Special Laws are all either based on the primary necessity of Analysis, or they assume it. The growth of thought, of feeling, and of volition begins in Analysis.

2. It has been shown that the effort and direction of Analysis are dependent upon external stimuli and the exercise of native energy, and that within certain limits they are subject to control, alike by the teacher in the use of stimuli, and by the taught in maintaining and directing attention. Much of the effort in this work has been to set forth the way in which the mind can best be led to make Analysis. In the first place, it may be said that the study of such a science as this, requiring as it does the practice of the most careful discriminations, is one of the best stimuli which can be presented to a mind that is prepared

to grapple with the questions raised. In the second place, it has been the endeavor to present the subject in the form most completely Analytic. But it has been the chief study to discover and present the Laws in accordance with which different motives stimulate the mind in different directions, and also those in accordance with which the mind maintains its own activities and determines their form.

3. The importance of Analysis in the development of knowledge has been shown. We have seen that the intellectual faculties lie dormant until the mind is brought to distinguish differences by the stimulus of external objects, and that each of the faculties grows, and each particular form of knowledge is developed, only as a variety of discriminations is made. The stimulus of differences is the *force-liberator*, as the Germans would call it, the releaser of latent force spoken of on page 38 of this work, that develops the potential energy of the mind into a kinetic energy acting in the direction of the difference presented. The teacher must use this to excite the activity of knowledge, and the learner must exert his own power in maintaining and directing the attention, and fixing the energies on the differences presented. Other things being equal, one's knowledge and intellectual power must be valued in proportion to the variety of forms to which the mind is accustomed. The teacher should be so thoroughly furnished for each lesson that if he fails to elicit mental activity by presenting truth in one view, he may immediately offer another side to the mind, and another, until a discrimination is found that awakens recognition. This is the active side of his work as an instructor, and it calls for the utmost readiness and diligence.

4. Difference is not less the key that unlocks the feelings. The sense of harmony can not be developed by a

monotone, nor the sense of the beautiful by a straight line. So evident is this that Variety in Unity has formed the theme of endless eulogy in works of Rhetoric and Art, whenever authors have sought to set forth the methods by which the æsthetic emotions are stirred.

No one cares to deny that it is the harmonious combination of the many in the one that excites the highest feelings. But there is not the same appreciation of the fact that it requires an analysis as critical to make the combination harmonious, and to distinguish between a true and a false feeling, as is required to distinguish between true and false reasoning. The common aphorism, "There is no disputing about taste," and the moral dictum, "Each man is right in obeying his own conscience," are often used as though taste and conscience were ultimate units of mental energy, and not unities to be developed, like the cognitive faculties, by a many-sided experience which, by analysis, reveals harmonious combinations to the native unifying power that distinguishes the true and the false in feeling, the same as in knowledge.

In the chapter on the feelings it was shown that the sensibilities, tastes, and emotions are developed from discriminations, the same as imagination or reasoning, and that the energy rises in importance in proportion to the variety and clearness with which the differences are held in consciousness. It should be particularly impressed upon the teacher that undiscriminating sentiment can not be relied upon in any activity of feeling. It is not true taste, true benevolence, nor true morality. A person who can not point out any of the harmonies of a picture, a landscape, or an oratorio is no connoisseur in painting or music, however much native capacity for development he may show. No other book so abounds in expressions of sympathy for the poor as the Bible, but we are not told that the disciples of him who said, "Give to him that asketh of thee," went about distributing denarïi to the beggars they met by the way, and that thronged the city gates through which they passed. It is not without significance that when Peter was asked for alms by the lame man at the gate Beautiful, he gave not gold, but healing, a gift that, with all its other advantages, freed the beneficiary from dependence on alms. It is a pattern of discriminating good will; and every-where the apostles went about thus doing good. As benevolence is thus lifted above the sphere of mere sentiment, so moral duties are lifted above the control of undiscriminating impulse. Perhaps the moral nature may be so perverted that it is impossible to form reliable moral judgments, but there is no way to correct and stimulate conscience but by discriminating the qualities of acts.

5. If the need of Analysis has been inadequately acknowledged in the usual consideration of the feelings, it has been almost entirely ignored in the treatment of the will. Yet it is in this culmination of mental activity that the need of ready and accurate Analysis is most pressing; for the moment of activity quickly passes, and mistakes of conduct can not be recalled. As it is the distinction of color, form, and fragrance that gives character to our perception of a rose, as it is the distinction of right and wrong that gives character to conscience, so it is the distinction of motives to action that gives character to a volition. So little have men been wont to make a sharp distinction between Analysis and Synthesis in treating of the will, that the element of Analysis is often left out of the account in considering a voluntary act without exposing the exact error of an illogical conclusion. We have seen that synthesis is due to the native tendency of an active mental energy. If we leave the Analytic element out of

our consideration of voluntary activity, there is left only the synthetic or natural tendency, and we are logically driven to a belief in the irresponsibility of human action and even fatalism. All feel that there ought to be some escape from this conclusion, but while we say it can not be true, we confine the attention in considering the will to the final culmination in action, which results from a synthetic impulse, and when a disputant chooses to lead us on to the conclusion of fatalism it is difficult to detect the fallacy, for it lies outside of things considered.

But while the element of synthesis, which is manifest in the final determination of the will, is a natural tendency, like the force of gravitation in a falling body, there is always opposed to this the power of Analysis, by which variety may be held before the mind, and synthesis delayed and modified. It is in this Analytic power that the freedom of the will consists, as we may see if we will examine an after-judgment of conduct. If we have gone wrong or made a failure, we condemn ourselves, not simply because we might have done differently, but because, if we had examined the reasons for our conduct more carefully, we would have done differently. We were not satisfied at the time we acted, and we ought to have given greater consideration to motives that we did not carefully weigh. The measure of our self-condemnation will depend upon the motives within our reach, and our ability to analyze and understand them. These resources of the will limit our real freedom in the case. Analysis throws light on the pathway of human conduct, and this is the condemnation, that men love darkness rather than light.

Perhaps men mean substantially this when they oppose to the idea of fatalism the fact of the consciousness of freedom. But the two arguments do not seem to meet on a common ground. The one is an argument of fact, and is convincing for practical purposes; the other is an argument of reason, and an appeal is taken from the inference of fact on the ground that we are so often deceived by appearances. But when we find Analysis opposed to Synthesis in the activity of the will, we find a basis for freedom in an opposition of forces that runs through every manifestation of mental energy. Not all the forces of light, electricity, chemical affinity, and so forth, have yet been identified with attraction, and reduced to a common law of activity. Perhaps this may be done in the future. But there is one force that seems necessarily irreconcilable with attraction. The force of repulsion has no known character in common with attraction, and it is on the combined activity of the two that nature depends for form and stability. In like manner Analysis and Synthesis are ever present and opposing forces in mental activity, and on their combined influence depend the form and permanency of thought, feeling, and will.

This view does not regard the freedom of the human will as absolute and unconditioned, but as possible on conditions that may be realized, and as actual within certain variable limitations. It meets the argument of fatalism on a common ground, opposing the freedom of Analysis to the native tendency to Synthesis; and, what is of greatest moment, it shows how the will is to be developed, and points out the way in which the bounds of its freedom are to be enlarged. So long as the will has the power of choice, it is capable of freedom; so long as it holds before itself two motives and refrains from decision, it is actually engaged in a free exercise with respect to the thing to be determined upon; and to whatever extent it discriminates motives with reference to acting, to that extent it exercises freedom with respect to the act. Freedom of action ceases as soon as the will makes a decision or ceases to discriminate motives. The will is therefore to be developed in accordance with the same laws as the other mental faculties, and the character of its decisions must be determined by Analysis, the same as the character of a perception.

If it be thought by any one that this Analysis is an activity of cognition rather than of the will, let him consider in the first place, what has been said of the intimate relations of cognition, feeling, and volition, and that cognition must always precede volition; and then remember that it is the province of the will to make and control the Analysis of motives as such, for it is only to the will that any thing can appeal as a motive. If it seems to any that the will must determine to discriminate before it analyzes motives, that a synthetic act must precede the first act of Analysis, and that we are therefore driven to consider the first act of the will as necessitated, let them consider what has been said with reference to the order in which discrimination and unification are developed. They will see that the free act of Analysis implies only the possible forms of determinate Synthesis, not their actual development, as an antecedent condition of its own exercise.

6. Finally, it must be urged that Analysis is opposed to the natural indolence of the mind, as has before been shown, and the teacher must be prepared to present many varieties of stimulus, and adapt them to the condition, native power, and stage of development of each pupil. The kinds of stimulus that may be presented and the manner of presenting them under different conditions have been set forth in a general way, but a systematic treatment of these subjects belongs properly to the province of Methods. But, with all the help one can get from books and teachers, he must rely largely on his own in-

genuity to discover the actual stimulus best suited to a particular case and the way in which it may be best presented.

II. TEST THE FORMS OF SYNTHESIS.

1. Having dwelt so minutely on the importance of compelling the mind to analyze, it will not be necessary to go to the same length of details in showing the importance of securing clear and exact Synthetic forms. We have already learned that Analysis and Synthesis are always associated, and if we see the importance of clearness of Unification in one instance, it will be easy to apply the same reasoning to all Synthesis.

2. Important as thoroughness of Analysis is, it is worthless unless accompanied by a proper Synthesis. Indeed, it is the unification alone that has fixed value, for it alone is the element of mental growth, and the analysis is valuable only in relation to this unification. Analysis presents variety, and Synthesis can only contain what Analysis gives; but unless the elements of Analysis are unified, and rightly unified, they lose their importance. But, as we have seen, the energy of discrimination is not always held in conscious activity until unified, and often only the less important differences are unified, while those that are really important, partly from obscurity, partly from imperfect analysis, and partly from lack of active energy, are lost to consciousness, and a distorted, useless, or partial unity is the result.

3. Not only are there distortion, uselessness, and partiality, but the mind, working in accordance with the Laws of Degradation, naturally tends to rest in such imperfect results. The analytic energy must be constantly

stimulated, in order to maintain activity in sufficient variety to lead to correct unification. When a proper Synthesis is completed, there is no need of further analysis. Thus the forms of Synthetic unity are a test of analysis. If this unity is satisfactory, we cease to analyze. For instance: An ordinary observer in a forest only seeks to recognize different kinds of trees, as oak, pine, maple, and so forth, and distinguishes one tree from another only with reference to this classification. When he is able to identify each tree in this way, he is satisfied. But the shipwright must know the different kinds of oak, for he must identify a wood that is hard and strong, and that will resist the action of the elements. The ship of which he thinks has, not simply a keel of oak, but it is live-oak, and he must learn to discriminate a live-oak tree. The unity of the ship properly built determines the limit of his desire to discriminate. But the mind is ever falling short of perfect unities of thought. As only the most expert builders learn to distinguish minutely between different grades of material and kinds of workmanship, so the minds of men in general are satisfied with imperfect forms of thought and action.

4. The relative importance that belongs to the two elements, Analysis and Synthesis, is unequally recognized in different mental activities. We have seen how analysis is almost wholly ignored in considering the will. On the other hand, the place which Synthesis occupies in cognition is much obscured or entirely lost sight of. Indeed, methods of investigation and subjects of study have been classified as Analytic or Synthetic, much as though but one of these elements of activity could belong to the same subject or method. Such a classification is justifiable only in the case of methods and subjects where one of the elements is so easy and natural as to be taken for

granted, while the other requires the principal part of the energy to make the subject clear. But sometimes even when the energy is mainly required in one of these directions, care is needed to prevent obscurity and error arising from imperfect development in the other. In the exercise of cognition we need to be sure that the elements of thought, which are easily conceived, are properly united. A description of some object, an historical account, an explanation of some process, may be followed with the entire attention and an apparently perfect understanding, and yet lead to no clear conception of the whole; or there may be even an entirely erroneous conclusion.

5. We have seen the importance of unification as belonging to every mental activity, and have examined the Laws in accordance with which the mind unifies, and we have also seen that the forms of Synthesis are a test of Analysis. But it is difficult to determine when a child has gained a complete Synthetic form. This is especially true when children are taught in classes. What has been said before needs to be repeated here with emphasis, that pupils to be reached at all, must be reached as individuals. The working of the individual mind must be studied, to know what forms of thought are passing through it. These forms can be seen only in the child's expression of them. Therefore we must regard Expression as the test of unification. Individual expression must be called out again and again, with various lights and shades, to show exactly what the thought is, as this is the only thing that can be trusted as satisfactory evidence of the forms of thought. This is one of the chief ends of questioning, and is not second in importance to that of the development of thought, and rules for methods of questioning should take this end into consideration.

But expression is found not only in words. It is quite as definite in works and conduct. The manner in which one expresses himself best must be taken as the surest indication of the completeness of his thought; and habits of speaking, writing, doing, making things, and proper behavior, should be cultivated, that children may be able to express themselves most appropriately under all the circumstances of life. But at least some test of expression should always we exacted, and it should not be taken for granted that one child has unified a thought because another is able to express it with propriety.

III. SEEK THE HIGHER FORMS OF UNIFICATION.

1. We have seen the necessity for Synthesis, to secure permanency of form in mental growth, in the General Law and elsewhere. But there are degrees of perfection in the forms of unification, and grades of unities. The conception of a piece of metal as gold, because it is yellow, is an imperfect identification, because there must be other qualities to make it gold. To call the piece gold is a higher identification than to call it metal, for it identifies a larger number of characteristics and implies more knowledge of the piece so named. To call a man a rational being is a higher identification than to call him an animal, for it identifies the higher characteristics of his nature. Synthesis is made more perfect by making analysis more complete, and this point has been sufficiently elaborated; it is raised in grade by identifying with more comprehensive or higher ends.

2. We may see the importance of identifying things with reference to comprehensive ends illustrated in the study of the grammar of a language. If studied only with reference to the forms of words, it appeals to but a narrow range of mental activities, and develops but a

narrow mind. The importance of a comprehensive end does not imply inability to find enough in more limited spheres to engage our time, but upon the fact that only the more comprehensive ends call forth our powers in all their variety. The German scholar who is said to have lamented that he had squandered his life in attempting to investigate the whole of Greek accidence, when he might have accomplished something if he had confined himself to the dative case, would certainly have found enough in this to keep him busy; but he would have been only the more completely shut out from the great world of thought in which his fellow men were moving, and for which his own mind was clearly designed. If the facts and laws of grammar can not be made to appear as elements in the expression of thought, and unified with the most comprehensive view of mental development as manifest in speech, it is not of sufficient consequence to be taught. But the true study of grammar is the study of thought expressed in the form of words, and when this comprehensive end is kept in view, the study is of great educational value.

The importance of unities of a high order may be seen by considering the different ends set before the young to stimulate them to activity. With the same natural endowments and industry, children brought up at the court of kings gain a more commanding ability than a poor peasant boy who never has the opportunity of learning the methods and principles that are involved in governing a state. One may acquire great skill in laying brick or braiding straw, it will not save him from the necessity of economizing his expenses and practicing much self-denial, unless he also learns how such things stand related to the greater enterprises of life, and occupies his skill in seeking to achieve some higher end. The merchant who appears at his best in selling a spool of thread or a paper of pins, the scholar who can do nothing else as well as he can add a column of figures or parse a sentence, the general who thinks of nothing but drilling a battalion, will never accomplish much good for the world. It must not be inferred that perfection in trifles is underrated, but trifles should not be the end one seeks; and the highest practical perfection even in trifles, can only be gained when they are considered in their relations to great results. The great end should be kept in view, to shape the trifling act.

3. From the above considerations we may learn the importance of prudence in the choice of subjects of thought and study, and of giving our best thoughts to the highest ends. There is great range for choice, but there are also limitations that call for wisdom in choosing. One should consider first, what things are in themselves most worthy; secondly, what things he has capacity for; thirdly, what things are fundamental to the greatest variety of results; and fourthly, what things fit in with the active influences around him.

a. Under the first head should be placed, first of all, the development of moral character. Unification has been commended for giving permanency to forms of activity. Moral character is the basis of all trust, because it is found to be the most constant and persistent force in the intellectual constitution. It is unification of the highest order. Without it there is no stability or certainty in human action. Not only should sound moral principles be inculcated theoretically, but honesty and integrity should characterize all study, work, and conduct.

After the development of moral character should be placed that of the other intellectual powers. How far these should be treated with equal consideration to secure symmetry, and how far some specialty should be given the preference to secure pre-eminence in some one thing or because of special fitness of native capacity, must be left to be settled for individual cases. The Laws of Correlation warn us in one direction, and the Laws of Limitation in the other. The extensive range of subjects at present used for intellectual development has led to much controversy as to what has the highest claims upon our schools. Considered with reference to their intrinsic value for purposes of intellectual development, the Laws of Development ought to help us in arriving at some conclusion. Without entering upon this controversy, however, two cautions may be suggested in regard to the study of the Natural Sciences. In the first place, there is an undoubted tendency to study them with low aims. The effect of this should be guarded against, as it may be, by giving a due portion of time and energy to the study of the intellectual sciences, history, and literature, and by seeking to give the true place to the physical in its relations to other orders of being. In the second place, there is danger that the study of material forms may be resorted to from indolence. Since they appeal directly to the senses, the unifications are easier, and if one does not attain to the highest eminence, he can at least make some progress with less expenditure of energy; and a portion of their attractiveness, it is to be feared, is dependent upon the Laws of Degradation. The further these sciences are advanced the less liable they are to this danger, and in teaching them the highest results of the sciences should be sought.

Study devoted to what are called the practical ends of life should be placed last in educational importance, and subsidiary to the other ends. But these may be so bound up with moral responsibilities as to place them among the first, with moral character. When one places himself, or is placed by the necessary conditions of life, under practical obligations to others, practical results are the highest ends for which he can strive. All else should bend to the call of duty.

b. In considering the adaptation of one's powers we should not be hasty in judgment, but consider that until there has been a fair trial of each it is unjust to decide with positiveness which is capable of most. All should be tested in youth, that when the responsibilities of life come the powers that are required may be used to the best advantage, and one may be able to tell what he can best do. The highest skill can be attained only in that for which one is best adapted.

c. In asking what things are fundamental to the greatest variety of results we seek comprehensiveness. It may be said in general that the subjects taught in schools have been proved by long experience and extensive use to be adapted in the highest degree to the various purposes of life. It was for this reason they were adopted, and it is for this reason they have maintained their position through the centuries. Schools and studies were not originally invented to discipline the mind of the young, but to render them capable of certain necessary things. As capacity for self-defense and for acquiring the things desired gradually changed from the physical to the intellectual—as Sallust has said with respect to military power—the intellectual element encroached upon the physical. The term Liberal Education points to this fact. A liberal education was one that was adapted to a free man, *liberalis homo.* It embraced those things that enabled one to live a life becoming a free man, being largely intellectual, but embracing also the manual art of war, for a free man must be a soldier. Slaves were instructed in the arts of servile life. In this way the studies of the schools have had their beginning and growth. Those that have proved their worth by centuries of the highest usefulness should not be thoughtlessly thrown out of the school curriculum. It should first be clearly shown that they are less useful in the present condition of things than others that might take their place, and then they should be exchanged without hesitation.

A few subjects should be specially named. Number, form, and mechanical force lie at the foundation of the physical universe in our conception of it, and it does not seem possible ever to supersede them. Therefore the Sciences of Arithmetic, Geometry, and Mechanics lie at the foundation of a true understanding of all physics. These studies should be given pre-eminence in any course for the understanding of the material universe.

d. The young should be instructed in the thoughts that have engaged the minds of men in the past, for quite another reason than because they are likely to be, in their very nature, fundamental to a large variety of ends. The race is making steady progress towards some goal. There are blunders here and failures there, but, like the Alpine glacier, winding its sinuous way around cliffs, through gorges, over granite barriers, and anon spreading itself into a vast sea, but ever moving its mass downward a little nearer the sunny plain below, where its liquid ice melts and unites with the rain that falls from heaven; so the dull and formless intellect of man is ever moving slowly but surely forward; now solving some great problem of the universe, and now overcoming some hard physical obstacle; and the mass will ever continue to move forward until each individual is able to identify all truth, as a drop of water from the glacier moves and mingles freely with all the waters of the boundless ocean. Without necessity for the same mistakes and loss of time, it has been shown that the mind of the individual is developed along the same lines as the intelligence of the race, and individual progress is in this direction. If then the child is to be developed in harmony with the most truly progressive forces about him, he must be made acquainted with the thoughts that survive time. He should be made familiar with whatever is classic in literature, science, and art.

4. It has been shown that the natural tendency of mental energy is to drop from higher to lower forms of activity. Nature has many ways of economizing force and saving it from dissipation. Growing vegetation stores up heat that would otherwise be lost in space; forces interchange with each other and are preserved; the waters of the sea expand and rise, and are carried back upon the mountain to restore there the conditions of life; mist, clouds, and dust in the atmosphere check the loss of heat by radiation and return it to the earth; but still it requires all the mighty force of the sun's heat and light to make up for the waste that comes in spite of all this economy. It need not be considered strange if, in such a world, it requires constant effort to keep the energy of the mind up to the plane of its highest possible achievement. The Law of Mental Degradation is as inexorable as the Law of Gravitation of Matter. Indolence is first to be overcome; next, waywardness,—the disposition to give way to every passing impulse in thought, feeling, and action,—must be fought. Then comes the struggle against the tendency to seek low aims and form low habits, that absorb and dissipate all the strength of manhood. The power to inspire a young soul with noble impulses is a qualification of the first rank. Then there will be the temptation to take the easiest road to apparent success,

rather than the harder road to certain eminence. And, finally, there will be a demand for that judicious advice that, adding the tenderest parental interest to professional pride, seeks to aid the young man in his choice of his life work, where the best that is in him may find its best expression.

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NOTE.—Full-face figures refer to the page, and other references are to subdivisions of chapters. L. stands for Law.

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