NATIONAL EDUCATION

Du PONT de NEMOURS

National Education

in

The United States of America

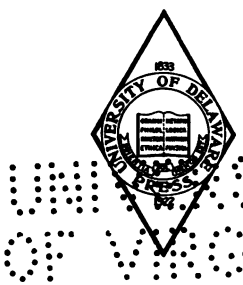
by

DU PONT DE NEMOURS

Translated from the Second French Edition
of 1812 and with an Introduction

by

B. G. DU PONT



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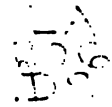

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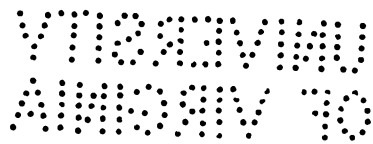

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INTRODUCTION

THIS scheme for national education, written at the request of Thomas Jefferson more than a hundred and twenty years ago and never translated till now, must be of interest to all students of the science of education, especially as some of the methods suggested by Du Pont de Nemours are now being tried with apparent success in the very excellent schools of the middle west.

But this book is something more than the educational ideas of a learned Frenchman. It probably contains the theories of both Jefferson and Du Pont de Nemours modified to form one carefully detailed plan. It was written before Jefferson's election to the presidency, when as vice-president he was living in Philadelphia and Du Pont de Nemours was in New York and they had frequent opportunities of meeting. They had been warm friends for more than fifteen

years; they were both eager students of Greek and Latin and mathematics,—Du Pont was the better educated in scientific subjects, Jefferson in modern languages; both were thoughtful and honest patriots; each had seen the institutions of his country shaken to their foundations by the most important revolutions in history and each had played an important part in those revolutions. It was inevitable that two such men should try to formulate a plan to educate their country-men for their new opportunities.

It is not the purpose of this introduction to give a detailed biography of Jefferson or Du Pont de Nemours, but some account of their knowledge of the subject of this book may add to its interest.

Pierre Samuel du Pont was born in Paris in 1739. He was not a robust child and read with his mother in preference to playing with other children; she was sufficiently interested in his education to study Latin with him and they became good Latin scholars together. When he was sixteen years old, his mother died and his father allowed him to leave home, making him a small allowance. He lived for some months with a young man who was dying of tuberculosis and became so interested in caring for him that at the suggestion of the attending physician he

decided to study medicine. He worked hard at his profession, but, to quote his own *Memoirs*, "was not rich enough" to buy a practice in Paris. In the meantime he was writing a little, dancing, playing in theatricals,—amusing himself quite wholesomely. He met men of affairs and became increasingly interested in political economy and in agriculture; he was a member of the Société d'Agriculture de Soissons.

Then, when twenty-two years old, with no money except the allowance from his father, he became engaged to marry a young lady with no dowry. He tried to find a profitable outlet for his knowledge and his theories, but without success until Francois Quesnay, the celebrated political economist, happened to read a pamphlet by Du Pont called *Richesse de l'Etat* and sent for the author. Du Pont says in his memoirs, "for eleven years he was my master, my instructor, my father." Quesnay was then physician to Madame de Pompadour and his influence was very great. He convinced her of the necessity of encouraging agriculture, and the work that he and Du Pont had accomplished was beginning to bear fruit when Madame de Pompadour died after a short illness and Du Pont's hope of a position in the financial department of the government was disappointed.

But Turgot had become interested in Du Pont's pamphlet on *Le Commerce des Grains,* sought him out and offered him employment. So successful were his writings and the paper that he edited in support of Turgot's doctrines that in 1766 he was at last able to marry. In 1772 he went to Poland as secretary of the council of public instruction, at the request of Stanislas Poniatowski, King of Poland; but two years Turgot became financial minister in France and sent for Du Pont to return and work with him. In 1776 Turgot's reforms became irksome to the court and he was dismissed. Du Pont retired to his estate near Nemours and occupied himself with the education of his two sons, the development of his estate, the translation of Ariosto and his Memoirs of Turgot; he also employed much of his time and endeared himself to his neighbors by practicing his profession of medicine with much success.

In 1782 Vergennes, then minister of foreign affairs, sent for him to negotiate with Dr. James Hutton, the English minister, for the recognition of the independence of the United States and afterward for a French-English treaty of commerce. As a reward for these services Du Pont was made Councillor of State; but he was even better rewarded by the opportunity of form-

ing friendships with such men as Benjamin Franklin and Thomas Jefferson.

Jefferson was four years younger than Du Pont. He was born and had always lived on his father's estate in Virginia, where he afterward built his own home, Monticello; he was fond of study, graduated from William and Mary College at twenty and was admitted to the bar at twenty-four. He was sent to the Virginia house of burgesses in 1769 and was from that time always in the service of the colony until he was appointed a member of the Continental Congress in 1775. His pamphlet, *A Summary View of the Rights of America,* was widely read, gave him a place among the revolutionary leaders and earned for him the authorship of the Declaration of Independence. In October, 1776, having resigned his seat in the Continental Congress and declined to go to France as a commissioner with Benjamin Franklin, he re-entered the Virginia Legislature. There he worked eagerly for a revision of the state laws,—for the repeal of a law of primogeniture, and of the support of an established church, and in 1786 for a system of general education. The Encyclopædia Britannica says,—"District, grammar and classical schools, a free state library, and a state college were all included in his plan. He was the first

American statesman to make education by the state a fundamental article of democratic faith. His bill for elementary education he regarded as the most important part of the code, but Virginia had no strong middle class and the planters would not assume the burden of educating the poor."

In 1779 Jefferson was made governor of Virginia; in 1783 he was again in Congress; the following year he went to France to succeed Franklin as minister. There his position and his sympathies made for him friendships in court circles as well as with the more moderate of the revolutionists. He returned to America in 1789 with every intention of going back to France, but was urged by Washington to remain as Secretary of State and finally accepted. Partly because of political rivalries and partly because his long absence was being felt in the administration of his estate, he resigned in 1793 and retired to Monticello where he lived quietly and happily until his election to the vice-presidency in 1796, when with great reluctance he returned to public affairs.

In the meantime Vergennes had appointed Du Pont commissioner general of commerce,—the general administrator of foreign and domestic commerce with some authority in agricultural

matters. He continued to work with the ministers during the session of the Assembly of Notables, of which the King appointed him secretary. When the States General was summoned, he was elected a member of the Third Estate from the baillage of Nemours and was afterward a member of the Constituent Assembly. At that time he wrote innumerable pamphlets,—on the best way of obtaining loans; on ecclesiastical property; on a constitution for the city of Paris; on the revenue produced by the sale of tobacco; on the lottery; on national education, &c., &c. These pamphlets were signed *Du Pont (de Nemours)* to distinguish him from Du Pont (de Bigorre) who was sent to the States General from Bigorre, and he used the whole name thereafter as did his sons.

Du Pont hoped and worked for a constitutional monarchy. On the tenth of August, 1792, he and his younger son— the elder son was in America—fought for the safety of the King and, as a result, Du Pont, who had been recognized, was concealed by his friends in the neighborhood of Paris until he could go quietly to his home in the country and resume his practice of medicine. Two years later he was found by Robespierre's agents, was arrested, imprisoned, and

only escaped execution by the fall of Robespierre.

Soon after his release he was elected to the Council of Five Hundred; but his continued resistance to the Jacobin party and his criticism of the government of the Directory made life in France too difficult. He made elaborate plans for the purchase of land in Virginia that should offer homes to those of his countrymen who felt, as he did, that there was no place in Europe for men of their convictions. For that purpose he formed a stock company of which he and his sons were the directors. Much money was promised him,—some was paid. He and his family sailed from France in 1799 and were in New York in January, 1800. In a letter to his daughter, dated "Philadelphia, January 17," Jefferson says,—"M. du Pont, his wife and family are arrived at New York, after a voyage of three months and five days. I suppose after he is a little recruited from the voyage we shall see him here. His son is with him, as is also his son-in-law, Bureau Pusy,* the companion and fellow-sufferer of Lafayette. I have a letter from Lafayette of April; he then expected to sail for

* Bureaux de Pusy, the son-in-law of Du Pont's second wife.

America in July, but I suspect he awaits the effect of the mission of our ministers. I presume that Madame de Lafayette is to come with him, and that they mean to settle in America."

It was a serious blow to the plans of Du Pont de Nemours when Jefferson assured him that all real estate prices were at their very highest and that to buy the land offered to him would mean ruin. The two men saw much of each other at this time, for Du Pont was frequently in Philadelphia and Jefferson was probably in New York occasionally. In August of that year Du Pont wrote to a cousin in Europe,—"I have written at the request of Mr. Jefferson, a work on national education in the United States." That was the first edition of this book, which was printed in Paris because Du Pont could not write in English and French was perfectly easy to Jefferson. Many of the ideas suggest the education bills that Jefferson had offered in previous years to the Virginia Legislature; many of them show the careful elaboration that characterized Du Pont's methods;—but one of them we may feel very sure was not Jefferson's. The idea of a national university was not suggested in any of his earlier plans, which were all for education directed by the authorities of the individual state. But it was not a new idea; in his annual address

to Congress in December, 1796, Washington said,—"I have proposed to the consideration of Congress the expediency of establishing a national university and also a military academy. The desirableness of both these institutions has so constantly increased with every new view I have taken of the subject that I cannot omit the opportunity of once for all recalling your attention to them. . . . . Amongst the motives to such an institution, the assimilation of the principles, opinions, and manners of our countrymen by the common education of a portion of our youth from every quarter well deserves attention. The more homogeneous our citizens can be made in these particulars the greater will be our prospect of permanent union; and a primary object of such a national institution should be the education of our youth in the science of government." That argument would unquestionably recommend itself to Du Pont, whose experience had all been gained in a centralized government; it is not improbable that it was one of the subjects on which Washington and Jefferson could not agree.

But Jefferson and Du Pont discussed other matters of grave importance, for when Du Pont returned to France in 1802 he went as an author-

ized representative of the President of the United States.

(President Jefferson to Du Pont de Nemours)

Washington, April 25, 1802.

Dear Sir,—The week being now closed during which you had given me a hope of seeing you here, I think it safe to enclose you my letters for Paris, lest they should fail of the benefit of so desirable a conveyance. They are addressed to Kosciuszko, Madame de Corny, Mrs. Short and Chancellor Livingston. You will perceive the unlimited confidence I repose in your good faith, and in your cordial dispositions to serve both countries, when you observe that I leave the letters for Chancellor Livingston open for your perusal. The first page respects a cypher, as do the loose sheets folded with the letter. These are interesting to him and myself only, and therefore are not for your perusal. It is the second, third and fourth pages which I wish you to read to possess yourself of completely, and then seal the letter with wafers stuck under the flying seal, that it may be seen by nobody else if any accident should happen to you. I wish you to be possessed of the subject, because you may be able to impress on the government of France the inevitable consequences of their taking possession of Louisiana; and though, as I here mention, the cession of New Orleans and the Floridas to us would be a palliation, yet I believe it would be no more, and that this measure will cost France and perhaps not very long hence, a war which will annihilate her on the ocean, and place that element under the despotism of two nations, which I am not reconciled to the more because my own would be one of them. Add to this the exclu-

sive appropriation of both continents of America as a consequence. I wish the present order of things to continue, and with a view to this I value highly a state of friendship between France and us. You know too well how sincere I have ever been in these dispositions to doubt them. You know, too, how much I value peace, and how unwillingly I should see any event take place which would render war a necessary resource; and that all our movements should change their character and object. I am thus open with you, because I trust that you will have it in your power to impress on that government considerations, in the scale against which the possession of Louisiana is nothing. In Europe, nothing but Europe is seen, or supposed to have any right in the affairs of nations; but this little event, of France's possessing herself of Louisiana, which is thrown in as nothing, as a mere make-weight in the general settlement of accounts,—this speck which now appears as an almost invisible point in the horizon, is the embryo of a tornado which will burst the countries on both sides of the Atlantic, and involve in its effects their highest destinies. That it may yet be avoided is my sincere prayer; and if you can be the means of informing the wisdom of Bonaparte of all its consequences, you have deserved well of both countries. Peace and abstinence from European interferences are our objects, and so will continue while the present order of things in America remain uninterrupted. There is another service you can render. I am told that Talleyrand is personally hostile to us. This, I suppose, has been occasioned by the X Y Z history. But he should consider that that was the artifice of a party, willing to sacrifice him to the consolidation of their power. This na-

tion has done him justice by dismissing them; that those in power are precisely those who disbelieved that story, and saw in it nothing but an attempt to deceive our country; that we entertain towards him personally the most friendly dispositions; that as to the government of France, we know too little of the state of things there to understand what it is, and have no inclination to meddle in their settlement. Whatever government they establish, we wish to be well with it. One more request, —that you deliver the letter to Chancellor Livings with your own hands, and moreover, that you charge Madame Du Pont, if any accident happen to you, that she deliver the letter with her own hands. If it passes only through her's and your's, I shall have perfect confidence in its safety. Present her my most sincere respects and accept for yourself assurances of my constant affection, and my prayers, that a genial sky and propitious gales may place you, after a pleasant voyage, in the midst of your friends.

His land development plans proving hopeless, Du Pont de Nemours returned to France in July of 1802, leaving his sons and their families in America, in business for themselves. He made some commercial shipments to his elder son in New York and sold some cargoes for him in Europe, but his principal occupations were at the office of the Chamber of Commerce, of which he was secretary, and in editing the works of Turgot. He had sold his estate in the country and lived very quietly in Paris. At the abdication of

Napoleon in 1814 he was made secretary of the provisional government and, when the King returned, Councillor of State. But on Napoleon's return from Elba the next year he left France for the last time and joined his sons in America.

Shortly before Jefferson's term of office ended in 1809 he wrote to Du Pont de Nemours,—

> "Within a few days I retire to my family, my books, and farms; and having gained the harbor myself, I shall look on my friends still buffeting the storm with anxiety indeed, but not with envy. Never did a prisoner, released from his chains, feel such relief as I shall on shaking off the shackles of power. Nature intended me for the tranquil pursuits of science, by rendering them my supreme delight. But the enormities of the time in which I have lived have forced me to take a part in resisting them, and to commit myself on the boisterous ocean of political passions. I thank God for the opportunity of retiring from them without censure, and carrying with me the most consoling proofs of public approbation. I leave everything in the hands of men so able to take care of them, that, if we are destined to meet misfortunes, it will be because no human wisdom could avert them. Should you return to the United States, perhaps your curiosity may lead you to visit the hermit of Monticello. He will receive you with affection and delight; hailing you in the meantime with his affectionate salutations and assurances of constant esteem and respect."

Early in December of 1815 Du Pont de Ne-

mours and his son Victor went to Monticello. They were there for about a week and on the way home stopped at Washington to dine with the President and with the Secretary of State. The visit to Monticello was a great pleasure to him. He was then seventy-six years old, Jefferson seventy-two; but both men loved the great out-of-doors, loved the young people of whom the house was full, loved the long talks of revolutions, of treaties, of Napoleon, of schools and universities. And for Du Pont it was almost the end. He died at the home of his son in Delaware, in August 1817, of an attack of gout, from which he had suffered for many years. One of his last thoughts was to send Jefferson a pamphlet on education.

(Thomas Jefferson to E. I. du Pont)

Poplar Forest near Lynchburg. Sept. 9. 17.

Dear Sir.—Your letter of the 11th of Aug. after a long detention at Monticello, is received at this place, where I have now been upwards of a month. I had seen in the public papers the unwelcome event it announced, & also the obituary notice to which your letter refers; it was but a modest sketch of the worth of M. Du Pont, for of no man who has lived could more good have been said with more truth. I had been happy in his friendship upwards of 30 years, for he was one of my early intimates in France. I had witnessed his steady virtue,

and disinterested patriotism thro' all the varying scenes, regular and revolutionary, thro' which that unhappy country has been doomed to pass. In these, his object never varied, that of the general good. for this no man ever labored more zealously or honestly; of which he has left abundant monuments. altho' at the age he had attained we were aware that his close could not be very distant, yet the moment of it's arrival could not fail to afflict us with those sentiments of regret which the loss of a beloved friend, a patriot, and an honest man, must ever excite. I sincerely condole with yourself and his family on the great void in their society produced by his loss, of which they will be long deeply sensible.

I duly received the pamphlet of M. Jullien on education, to whom I had been indebted some years before for a valuable work on the same subject. of this I expressed to him my high estimation in a letter of thanks which I trust he received. the present pamphlet is an additional proof of his useful assiduities on this interesting subject, which, if the condition of man is to be progressively ameliorated, as we fondly hope and believe, is to be the chief instrument in effecting it. I salute you with sentiments of great esteem and respect.

Th. Jefferson.

For Jefferson nine years more were left and they were devoted almost wholly to his university. In 1816 the establishment of Central College was authorized by the Virginia Legislature with Jefferson one of the trustees. In 1817 the corner stone was laid; Jefferson was rector of

the board of trustees and the legislature adopted his suggestion of renaming it the University of Virginia. Until its completion in 1825 he rode almost every day to watch the work and when he could not ride he sat on his terrace with a telescope to see the building grow. The University opened with seven schools in 1825. He died in 1826, and his own opinion of his life's work is shown in the epitaph that he wrote,—

Here was buried
Thomas Jefferson
Author of the Declaration of American Independence,
Of the Statute of Virginia for Religious Freedom,
And Father of the University of Virginia.

ON NATIONAL EDUCATION
in
THE UNITED STATES OF AMERICA
by
Du Pont de Nemours

PREFACE

THIS TREATISE was written in 1800, at the request of Mr. Jefferson, then Vice-President and afterward President of the United States of America; it had the approval of that great statesman and of his worthy successor.

It was not then known in France, England and the United States, that at about the same time, and perhaps even earlier, there were developed in Holland the excellent primary schools of which we have recently learned from Mr. Cuvier's interesting report.

The author congratulates himself that many of his own ideas are identical with those of the founders of these schools. When in matters of such importance, demanding profound study, men who are actuated by a deep interest in the public welfare find themselves in absolute agreement without any communication, one must believe that their decisions are the result of a true understanding of the subject.

The greatest credit belongs to those who began the work in Holland and who have con-

tinued it so successfully. The writer, consulting only his own mind for the suggestions he has written for the Americans, has no wish to question the right of the Hollanders to that honorable distinction.

FIRST PART

PRIMARY SCHOOLS

PRIMARY SCHOOLS

THE UNITED STATES are more advanced in their educational facilities than most countries.

They have a large number of primary schools; and as their paternal affection protects young children from working in the fields, it is possible to send them to the school-master—a condition which does not prevail in Europe.

Most young Americans, therefore, can read, write and cipher. Not more than four in a thousand are unable to write legibly—even neatly; while in Spain, Portugal, Italy, only a sixth of the population can read; in Germany, even in France, not more than a third; in Poland, about two men in a hundred; and in Russia not one in two hundred.

England, Holland, the Protestant Cantons of Switzerland, more nearly approach the standard of the United States, because in those countries the Bible is read; it is considered a duty to read it to children; and in that form of religion the sermons and liturgy in the language of the people tend to increase and formulate ideas of re-

sponsibility. Controversy, also, has developed argumentation and has thus given room for the exercise of logic.

In America, a great number of people read the Bible, and all the people read a newspaper. The fathers read aloud to their children while breakfast is being prepared—a task which occupies the mothers for three-quarters of an hour every morning. And as the newspapers of the United States are filled with all sorts of narratives—comments on matters political, physical, philosophic; information on agriculture, the arts, travel, navigation; and also extracts from all the best books in America and Europe—they disseminate an enormous amount of information, some of which is helpful to the young people, especially when they arrive at an age when the father resigns his place as reader in favor of the child who can best succeed him.

It is because of this kind of education that the Americans of the United States, without having more great men than other countries, have the great advantage of having a larger proportion of moderately well informed men; although their education may seem less perfect, it is nevertheless better and more equally distributed. But that does not mean that the general education

cannot be improved. And if improvement is a possibility, it is a duty.

To begin with, children should be spared the labor of learning to read, by teaching them to read by writing.

Such a method is a very simple one, suggested long ago and very seldom tried. In schools, even the best known and most progressive in all other ways, it has been considered too great a change in method to put a pen in a child's hand before he could read perfectly.

Writing is taught as a separate study, to which children are forced after reading lessons have exhausted in them that youthful eagerness which urges them to instruct themselves.

They have been wearied with rules and authority, and are given a still heavier task at the very moment when by a careful choice of proper books for their age they might have some pleasure and profit from the study of reading which has been so difficult. They have been given, as Montesquieu says, "work after work," or, rather, fatigue after fatigue. Sometimes they never outgrow a dislike for that sedentary occupation which, employed and distributed with intelligence, should become so rich a source of instruction and delight.

To begin the instruction of a child by teaching him to read is to forget that he prefers the use of his fingers to that of his brain; or rather that he uses his brain best by means of his fingers. He has an urgent desire to move, to act, to accomplish. He has confidence in an instinct rightly founded on many experiences. He has never learned anything except by struggling, running, touching, constructing. His hands, his feet, his eyes, his own power of observation, have already furnished him with many true ideas—physical and even metaphysical facts which fill his young brain and direct his actions. It is difficult for him, in consequence, to become merely a patient listener. The necessary inactivity is unnatural to his body, which nature is urging to fuller development; and it also irritates his mind, eager—not for words, particularly if he does not understand them—but for new things which he does understand. When he listens passively, he is controlled and taught by others; when he acts, he teaches himself. In the latter case he is freer, happier and more alert.

For a child to read is to listen and repeat; to write is to act and to make something from nothing.

To read is to remain in one place; to write may be accomplished in three or four ways—on the sand, with a stick; on a wall, with charcoal; on a board or a slate with chalk; on paper with a pencil, and at last, with pen and ink. There is less fatigue, more self-satisfaction; the variety of methods encourages more practice; the instruction is more firmly impressed and without ennui.

The art of writing, if taught at the beginning with a very little knowledge of reading, is much easier than that of reading taught separately. It is so easy to teach them together that all children might know them before leaving home, and arrive at school with those two branches of study already begun.

When a child has been shown how to make an A, he knows that it is A; and he can read it.

If you next show him how to make a P, and if you place the P before the A, he has written P A. Do it again and he will realize that he has written P A P A. Any child who in two little games has learned to write his father's name is delighted. He runs, frantic with joy, to show his mother and writes P A P A, P A P A, more often than he is asked to. Another little game teaches him another letter; he can write M A M A, and his joy is even greater. He is

not unwilling to alternate the letters; on the contrary it amuses him. It is always either P A P A or M A M A; either pleases him; and each time that he shows his accomplishment, it is with new delight. A child's letters are not at first as well made as those made for him; it is enough to say, "I make them better than you do." He tries to do them as well, and after many attempts, he succeeds.

Cat, dog, fly, cock, hen, egg, bird, eye, eyes, nose, ear, tree, corn, fire, bread, and other words of the same kind will give him no greater trouble. Those are the things he knows. He knows what he is doing and realizes that it may be useful. He has begun with the ideas that are most familiar to him and with the shortest words; the work on the game never seems long. The drawing of a little sketch may help him, may give him another kind of pleasure and instruction, and interest him more in writing, which thus becomes so much less difficult. What child would admit that he could not write the name of an animal of which he had drawn a picture? He would be ashamed. Drawing and writing taught together will teach him a little natural history, will encourage his taste, will develop his observation.

He will beg you to teach him to write a word, often one of his own choosing. He will practice it in your absence. It is unnecessary to teach him any letter until he needs to use it in a word. But by giving him his own time and only helping him to learn, all the letters, all the syllables, will in time be studied; and this will have been done by his own desire and initiative.

When he has exhausted the words he has thought of for himself, or found by accident, you will tell him that used alone their meaning is somewhat vague. Then you will add the article *the;* the pronoun *this;* and the application of the word will be individualized.

A little later will come a few adjectives and with them a clear idea of *things* which may be drawn, and qualities which can only be explained. You will decide whether this is not the natural opportunity to show him the analogy of *good* with *God,* the supreme goodness.

The necessity, the pleasure, of joining the expression of its qualities to the name of their possessor, will involve the use of the word *is* from the verb *to be.* With that the child can construct sentences; and he will enjoy writing the sentences he has composed.

The desire to vary sentences to the present, past, future, and conditional will teach him, by

practice, the use of conjugation. He will see for himself that the present infinitive of a verb is only a name for it.

Adverbs, prepositions, conjunctions will find their places in the sentences he will suggest to you. Interjections are exclamations, the first words he knew.

He will wish to know how to write everything he thinks and says. Then is the time to strengthen the sentiments of gratitude, affection, justice, natural at his age by recording under his pen and in his heart such short maxims as have impressed him, which cannot be learned too young, and of which the memory lasts through life.

All that he writes he will write correctly, because you will supply, or will have supplied, the letters and punctuation appropriate to his thought.

By this method a child could even learn two languages at the same time, with their spelling and the principles of their grammar; and in both languages the elements of morality, and a little natural history. He will have acquired some tastes, perhaps a fondness for reading, before the age when other children have learned to read, most of whom think of their books with distaste.

He will at least have lengthened his intellectual life and greatly increased its vitality.

The success of this arrangement of study would be quite assured in a home education supervised by an educated father; and it would be better that it should be accomplished in the family circle.* But if the family education has been neglected or prevented, there is no reason why it should not be supplied by national public education. The same ideas, the same methods, can be used by an instructor and will give almost the same results with a group of children as with a child by itself. Why? Because those ideas are part of the very nature of

* About forty years ago, I taught my two sons to read by this method, without talking of lessons but simply by showing them how to write.

Twenty years ago I tried it again on several children in my own village, with whom it was so successful that in a few months they wrote very well from each other's dictation. I then published a pamphlet entitled, *Ideas on National Education, by an Agriculturist.* This pamphlet addressed to the COMMITTEE ON PUBLIC INSTRUCTION had little success—which fact in no way diminishes my respect and gratitude to the members of the Committee, among whom are philosophers of the highest rank, who have done excellent service to the Nation, and to the world; by preserving our libraries, our medals, what is left of our monuments, and in reestablishing our academies, and by uniting them by a common bond in one organization under the name *Institute.* But, in the upheaval of the Revolution they had no time for details and could not be free either in thought or action.

My pamphlet having been forgotten, I tried in vain to persuade various friends to adopt my method; no one wanted to repeat my experience. One is constantly thwarted, in my country, by different forms of official formality, which for

the mind and heart of man, the same at all ages, and most easy to train in the brain of a child, whose mind is pure, whose reasoning is beginning, whose sensitiveness is still alert.

Our first duty, in the education of children, is to avoid interference with the natural course of their thoughts, not to exhaust their patience, to spare them effort and time which they might use in gaining real information, far more useful for their mental equipment than reading and writing, which are only *arts* intended to facilitate the knowledge of the *sciences*.

The science that will be most useful and necessary to them is arithmetic. They should be

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seventy years have been *novelties* and their improvements have not yet reached the primary schools, where M. Choron's method has likewise made very little progress.

It was not known in Paris that in Germany, a more studious nation than our own, the experiment of teaching writing first of all had been most successful; and I have read with extreme pleasure in the second number of the *Annales de l' Education*, edited by M. Guizot, that about 1778 M. Joachim Henri Campe published at Altona an excellent treatise in which he explained with much feeling, ability and judgment the advantages of the method of which I believed myself the inventor.

I am now hoping that my countrymen, by whom everything that comes from another country is always preferred, will have more confidence in an idea that has interested two philosophers, unknown to each other, who are entirely separated by four hundred leagues and by their different languages. The fact is proof that the idea is sound.

When it is in general use in Holstein and in the United States of America, it may be introduced in France, where it was born.

taught it by means of geometry, which makes it much easier to understand and much more interesting; in this way two important branches of science are taught at the same time by only one mental operation.

These methods of instruction save time, develop the intelligence instead of exhausting it, and give ample opportunity to impress on children those moral and physical principles which are the real objects of education and which are of vital importance to the man, his family and his country.

But for moral and physical instruction it is necessary to secure school books suitable for early childhood. At present no country has them.

These books should contain in proper sequence the lessons which the children are to write and read. It is necessary that they should have daily practice in writing and reading; and the exercise given them, instead of being a meaningless pursuit, should express definite and useful information, which at first need only be copied, and afterward should be used by the master for instruction and discussion by the pupils.

It is important that these books should engage and satisfy the curiosity of the children, and should not bore them.

It must always be remembered that children have a great desire to learn. They do nothing else. They are always in search of new sights and experiences; they are relentless inquisitors. And the reason that they so often dislike the school work which is provided for them is that it takes them from their chosen studies which they pursue freely and profitably in their walks and their games, or in examining us with an interest of which we are unaware, and of which we do not realize that we are the objects.

There is not one of them, even among those who later, and generally from our fault, become stupid, whose observations—physical, moral, mechanical, philosophic, grammatical and metaphysical—are not prodigious.

By the time they are seven years old most of them have acquired half of the impressions that they will gain in their whole life time,—and those impressions are the ones that will never be lost.

We all know that what is most deeply graven in our minds, is what we learned in our infancy, beginning with our native tongue.

The memory of youth retains everything. A mind beginning to act is attracted of its own accord by such facts as it can grasp, and impresses them on the understanding with much

more force than it can exercise when distractions and emotions complicate its action.

If the ideas that are received at the earliest age are contradicted by those next offered, most children will never have positive or definite opinions.

Such a situation is most harmful to those who are impressionable and positive. Compelled to realize that a part of their early instruction was untrue, they will reject the whole thing and they will doubt even the truths that were received prior to the errors.

Thus must atheists, educated by fanatics, reject the GREAT INTELLIGENCE who governs the universe, because of the *gross stupidity* with which their instructors spoke of him. Voltaire said very aptly, "They have made God suffer for the follies of the priest."

It is therefore important to direct the favorable disposition which is natural to children, in such a way as to impress on their minds during their youth principles which, while they attract their interest and thoughtfulness, are so true that they will be confirmed by all their later impressions of men and things. Then will experience reinforce the early teaching; respect and confidence in their instructors increase throughout life and add greater value to the

moral instruction that has been given. Their conduct will have an ordered plan. They will be supported by principles that are dear to them as coming partly from their own intelligence and partly from minds which they have learned to trust and to love.

OBJECTS AND METHODS OF INSTRUCTION

School books for little children should all give elementary instruction in ethics, some of them in physics and mathematics.

It is wise and necessary, as to ethics, that when they leave the primary school children should have clear ideas:

On *liberty*, which should never interfere with the liberty of others.

On *property*, which is acquired by work, and may be transferred by exchange, sale, inheritance, or gift.

On *justice*, of which the first principle is respect for the liberty and property of others.

On the value of *mutual helpfulness*, and the sacredness of *agreements*.

On *benevolence*, which includes *sympathy* and *forbearance;* and the *repayment* to children, the

aged and the infirm of the kindness which we ourselves received in our infancy when we were also feeble and helpless.

Everyone should realize that these *foundations of benevolence* are only *branches of justice.*

Concerning physical instruction:

Children should not be entirely ignorant of the main truths of cosmology, nor of the principles of agriculture and science.

They should have some information on the *natural history* of *animals* and of *common plants.* Such subjects are interesting at all ages, and they will suggest some ideas on vegetation, both cultivation and harvests.

In *hygiene,* they should have an idea of the causes that make air healthful or unhealthful, and the reasons why *work is wholesome.*

Such mathematics as may be taught in the primary schools should be easy to understand and of practical use.

Nothing is easier than to make this study a pleasure; it must be taught as nature herself would teach it without us, and as she has taught it to past generations.

Nature has never offered us an abstraction—only objects, *physical things,* that interest us and that we wish to understand.

Classifications, subdivisions, abstractions, are man's work. In no other way could physical study have been made wearisome and displeasing.

Our children are made like our first ancestors. Let them work by the same method. Help them to follow the natural road, to use their own intelligence, without demanding that they accept ours. Socrates never claimed to do more than to formulate ideas.

When we teach a youth to pass from the very metaphysical conception of the *point* to that of the *line;* from that of the *line*, still distinctly metaphysical, to that of the *surface* which at least means a definite thing to him; and from that of the *surface* to that of the *solid,* we reverse the natural order of observation. We keep his ideas too detached with no knowledge of what they are based on; therefore we tire him. *Why?* asks childhood, and the question is quite right. It is imperative that he be shown *why,* or we lose the great help that will be given by the natural activity of his mind. Can we expect that children will be attentive, that they will try, that they will work at our command, when we ourselves only work for our own interest or self-satisfaction?

If, on the other hand, we imitate nature; if we put under the eyes of our young observers *things* before *ideas*, and *ideas* before *words*, we shall follow the course of their intelligence and of all intelligence, and we shall have as great success as the power of their minds can achieve.

For these first *mathematical* studies, there must be cubes and parallelopipeds in single pieces and others of the same dimensions, composed of a collection of small cubes, some of which are divided into still smaller ones; these small and smaller cubes should be some black and some white so that the pupils may easily see when they separate. Then they should be taught how to count, and be made to count, the number of small cubes that form a large one. That will give a positive demonstration of the measurements of those solids. The children will always have a clear idea of what they have seen and done. We shall have taught them with astonishing rapidity, with absolute certainty, and almost simultaneously, cube root, square root, the measurement of solids, of planes, of length, breadth and thickness, of line, and also subtraction, addition, division, multiplication, proportion.

We will have them indicate by a figure the *number* of each cube, in order that it may be designated for separation or addition; and the

idea of the object, will connect itself, in their minds, with that of the figure. They will not calculate abstractions.

Some of our cubes will have one of their faces divided by a diagonal line into two right-angle triangles, one white and one black; and the square of the hypotheneuse can easily be demonstrated as well as the equality of the three angles of a triangle with two right angles.

After having divided the cubes into mathematical cubic parts, some should be divided into prisms and others into pyramids; never by imagination, always by the actual solid. Objects will be formed that will seem more difficult to measure than the cube. But, by considering them as fractions of cubes, composed of such fractions of cubes as have already been studied, the child will easily grasp the principles of measurement.

By showing him objects of equal dimensions and different materials—iron, lead, stone, wood, and weighing them or putting them under water before him, one can show him what is meant by *specific gravity;* one can give him some idea of the joy of Archimedes when he found the solution of the problem of Hiero's Crown.

Thus one may by use of sight attain comprehension; by physics, mathematics; and return-

ing from mathematics to physics, always with the object or the instrument, show children the properties of the lever and of its different forms; those of the inclined plane, of the wedge, of the vise, of the roller, of pulleys, of the block and fall, of cog-wheels; of the causes and finally the effect of raising water in a vacuum. Children thinking it all a game will learn to measure their roads, build their homes, construct pumps or mills.

In America, where country dwellings are very isolated, it is important that the principles of *mechanical arts* should be widely taught, and that each family should have at least one well-informed member; for a trained mechanic is not always within reach.

The people of this country have not yet found it necessary or wise to arrange for such a *subdivision* of *labor* as now develops the manufactures and commerce of greater nations by limiting the resourcefulness of many of its citizens and entrusting the welfare of multitudes of families to the varying accidents of fashion, or to the unjust and uncertain market of exclusive privilege protected by artillery, or to the perfectly unreasonable hope that other nations will not learn how to work for themselves and may be kept ignorant of the secrets of skilled labor.

On the contrary they are now at that fortunate time when every man must increase his talents by some knowledge of all crafts; when the race grows enlightened, strong and vigorous; when families can live in comfort, can enjoy freely and leave for their descendents the dew from the skies and the richness of the earth, which depend on the whims of no one, with no fear of another nation's jealousy, and can increase their possessions by allowing all countries to profit thereby and so give no cause for envy.

There is therefore no reason to fear, in America above all, that primary schools may be too progressive; there should be no such fear in any country.

The difficulty is not to discover how so many ideas or their permanent germs may be suggested to the minds of children from seven to ten years old, and may be retained and even developed after the lesson has ended; it is to know how to distribute such ideas so that those young minds may have a progressive development, always balanced, and which, if unchecked, offers constant novelty and never permits fatigue to dull the pleasure that instruction naturally gives.

When a child sees nothing new and learns nothing, he despises both his instructor and his

work. The young and alert intelligence of pupils advances easily and that of their teachers usually grows lazy. We accuse students of indifference or stupidity when, unable ourselves to offer them material to strengthen and stimulate their minds, we force them back to games which their own development has taught them are unprofitable or to the amusements of their younger brothers, and so curb and dwarf their mentality, sometimes permanently.

Very frequently the older children of families are less intelligent than the younger ones—one of the facts which make the law of inheritance by the oldest son so absurd. This misfortune to the older children is generally because the younger ones have never been obliged to check the natural development of their minds, for the simple reason that they have always lived with their elders; while the older children, constantly with their younger brothers and sisters, have in spite of themselves, been so held back, that in the same number of years, they are quite unable to make the same progress.

I see but two ways to escape this misfortune:

The first is to direct the studies of primary schools toward *natural history* and *mechanics*, so that a child will be always on the alert, even away from school, in the fields or at home, to

discover new facts or new objects, and so will keep his mind active and beyond danger of loss.

The second is to entrust to the older children, both in and out of school, some part of the instruction of the younger ones. If that could be properly arranged, both the older and younger ones would gain in pleasure and profit; for he who teaches others does not stultify himself, as he would in playing games to amuse a younger child. On the contrary, his mind is stimulated by his desire to make himself understood. He wishes to demonstrate his own knowledge; he is forced to study better and more carefully in order that he may teach. The real aim of education is less to give the children positive facts than to keep them constantly developing, working themselves and by themselves to observe and to understand. For that wonderful habit once made part of their lives will never be lost and will grow with the growth of their minds.

It has been those children who have always thought and advanced who have become great men actuated by a constant desire for more thought and further advancement; who from thirty to sixty years, sometimes till death, make strides that astonish the world, and, what is better, that illuminate it.

Chevalier Pawlet, who was a man of great

worth and in education a man of genius, spent sixty thousand francs yearly, before the French Revolution, in supporting a school in Paris for two hundred children who were received when they were eight or nine years old and taught until they were fifteen.

There were no instructors except those who taught the older pupils; who in turn taught their younger comrades.

Pawlet deposited in the school treasury, for each pupil twelve *sous* a day—six pence in English money—on which they were expected to supply themselves with sufficient food and to be clothed in an appropriate uniform; to pay for heat, light, paper, pens, pencils, and even their arms, for they were on a military footing; the whole to be administered by themselves. They were perfectly successful, and learned what none of us knows when he comes into the world—how to save money and to use it wisely.

Chevalier Pawlet made all the first expenditures. He equipped his school completely *once*, it was for the pupils to maintain it. He said to them, "Messieurs, for less than I am giving you, the King supports men five feet and a half tall (French measure). If you cannot support yourselves with the larger sum, you are not worthy to become men."

They proved themselves worthy. Their discipline was admirable, their thoroughness perfect. They chose their own officers and obeyed them promptly. Punishments were ordered in council with unprotested justice. The most severe was condemnation to idleness, standing nose to the wall; the others were, according to the offense, a foraging cap or the uniform worn wrong side out.

The founder, benefactor, law-maker only reserved the rights of inspection and exhortation. Every evening he was sent the muster-rolls with good and bad notations; and each week he was given statements, both moral and financial.

That was a wonderful example of what childhood can do, by and for itself.

Many very distinguised men have come from this school. All the pupils were taught reading, writing, drawing, French; ethics, mathematics as applied to war and to science, geography; method—the proper management of one's personal business, and even the general affairs of the household. They gained a dignified and wholesome sense of honor. Some of them studied Latin or German as well as French.

To return to the schools we are contemplating for the United States:

While the study of history is most important

and should be a part of every education, I am uncertain where to place it in the primary course. It is so extensive and so engrossing! It is so easy to listen to its facts, to keep them in one's memory and repeat them to others, with no mental effort and with no reasoning, that I fear that so luxuriant a tree, of which the branches have so many tendrils and which grows so rapidly, might crowd out all the others.

I would wish, then, that in primary schools history should be a reward and not a study: that books on history should be given as prizes to the best students. That, I think, with the natural attractiveness of the subject, would be sufficient to give some knowledge of it to all; for the pupil who has a prize will be proud of it, he will learn by heart the book that he has earned, and many of his friends will be eager to see this treasure which is given to the best among them. He will lend the book to his brothers and cousins. The reading will be voluntary; it will be a *recreation,* as history should be to all men who are not to be professors or government officials; and, for that very reason the book will be better read and better remembered. Given only to the older children of a primary school, and then as a prize for other work, it will not distract them from physics and

mathematics, of which they will be learning such rudiments as are essential.

I think, moreover, that the books intended for prizes in the primary schools, which are to give the nation its first ideas of history, should not be too complete—they would be too long. If we want to impart knowledge we must not offer more than our pupils have either time to read or the mentality to remember. *Everything* would be equivalent to *nothing*. We should offer to youth only two kinds of school history: very condensed tables to give an idea of time, events, important persons; and well chosen selections of facts and anecdotes: first the trunk and the large branches, then the flowers and the fruit. We must not let them be lost in the twigs and the leaves. It is most important that every statement in the collection of stories should have a marginal reference to the chronological table so that the child may realize the date and country of the event or adventure which impresses him.

BOOKS NECESSARY FOR PRIMARY SCHOOLS, AND THE MEANS OF PROCURING THEM

Let us find then what books we shall need to provide; for none of them exist.

We have seen that two kinds will be needed: one for study, another for prizes.

The first book must be the A B C book, which will contain in proper order the lessons and examples that the children are to write, read and copy until they write and read easily.

It should begin with such letters as form syllables that make little words of a kind interesting to a child.

As soon as is possible he should be shown how to write something that will please him and will teach him the value of knowing how to draw those characters called letters.

He must understand that he is to write *for his own pleasure*, not in order to obey or to please his father or his instructor. We must avoid constraint and fatigue.

Words that children already understand, that have few syllables, and require few letters can nevertheless employ all the letters of the alphabet and demonstrate their use. Those least used will come last.

So far as is possible words should be used that repeat the letters which a child has learned to recognize, in order that he may become familiar with them.

When the young writer suggests or is offered

a word containing letters that are new to him, it must be only such a word as will have one or two new letters.

The child must be taught to make each new letter correctly before putting it in a word.

In this way he will study only one letter at a time and will be repaid without much delay by the word he has learned to write.

Then there should be a time for rest, or for an amusing search for such words as he knows require the new letter.

This pause for learning a new letter, and for writing common words in which it is used becomes imperative when he reaches such sounds as are expressed by two characters as *th, sh, gh, ugh* in English, and *ch, gn, eu, oi, ou, ui, an, in, on* in French.

These letters of two characters are almost the only difficulties in the art of writing and reading. The difficulties should be diminished by being offered one at a time instead of being collected in a group as is done in the primers that are now in use.

The editors of the new primer must give much thought to the order of their lessons, so that the child can accept easily the ideas offered him, can combine them without effort, can group them understandingly.

When by a road that is firm and agreeable he has been led to written phrases that are only the expression of his own thoughts, he walks on flowers and by strides.

The way is opened for somewhat longer lessons but always such as will appeal to his mind or his heart.

When the children have quite understood and frequently copied the lessons, they should go back over the reasons for what they have done, which they have scarcely noticed. There they will find the first ideas of grammar and of the special grammar of their own language. They will have learned to write this language (which we learn so imperfectly and so late) as they learned to talk, by use; and they will also have learned the important truth that all use is founded on reason, or at least has a reason.

The editors should try to suggest, in the most natural order, with the most thoughtful enlightenment, with all the charm of the union of useful truths and honest beliefs, all the principles of ethics, some foundations of physics and mechanics, a very concise idea of cosmology and geography, a considerable amount of natural history.

And the book must be short; for within two

or three years at most the children should have copied it several times in their own handwriting.

It would be well that most of them should know it by heart.

By far the most important feature is that it should not weary them at the earliest age, and that at any age it can be reread with pleasure; that it shall be interesting for fathers, for mothers, for youth, indeed for every age and condition.

The second book will be on *physics* and *mathematics*.

It should begin with *physics*, which is the great object of the curiosity of childhood; go on to *geometry* as the means of measuring physical objects; and then to arithmetic, the expression of measures.

Arithmetic, begun by geometry, is like reading begun by writing; it offers no difficulty because the *things* themselves are before one's eyes and it is far easier to explain, to understand the things one sees than to calculate abstractly concerning imaginary objects that one has never seen nor touched.

The book of physics and mathematics should also contain those principles of mechanics and the detailed ideas of physics of which the primer gave some indications.

This book will not be easy to do well. But the primer will be a hundred times more difficult.

FOR REWARDS AND PRIZES

We have explained that these should be

1. A chronological abridgement of history.
2. A collection of facts and anecdotes.

The first book could be composed by any intelligent man who can write with accuracy.

For the second the writer should have good judgment, sensitiveness, discrimination, theories based on the science of government.

For the two books of *instruction*, the requirements are very different.

The one in physics and mathematics, for children from eight to ten years old, is exceedingly difficult.

The difficulty of its arrangement (and still more for that of an A B C book, needed for the use of children of six, or at most eight years) is greater than one can easily imagine.

I only know one book that has the charm, the ease, the intelligence, the art of concealing art, that this kind of work requires. It is by Franklin and is called *The Way to Wealth*. It has

been imitated in France by the worthy Mathon de la Cour *le Testament de Fortuné Ricard,* but with little of Franklin's talent and is quite useless for childhood. The only objects of the *Testament* were to show the value of economy in expenditure, and the increase of interest and capital; then to suggest the uses that can be made of several billions by a wise government.

Jean Jacques Rousseau worked for instructors, and for the application to instruction of the excellent maxim, *do not interfere.* Perhaps he pushed it too far, or his pupils hardly understood him; for of all the children educated by his method not one was willing to work, not one of them had been taught how. The art of believing oneself in the woods because one is trimming a bush, and the article on Emile's beans are the only two things in all that enchanting book which would enrich our A B C book and which should be in it; while *The Way to Wealth* could be used almost in its entirety.

Fénélon, with great intelligence and charm, is hard to use by extracts. Locke does not offer us six phrases.

Berquin! Can one suggest Berquin after Jean Jacques Rousseau, after Fénélon, after Franklin, after Locke? Berquin had excellent intentions, but little illumination and a very in-

effective pen. He wrote only for cities, for the great, for the rich, and could arouse in them only a mildly benevolent sentiment with no effect beyond a gift of money—the most worthless, the smallest part of generosity and as often harmful as profitable.

Madame de Genlis, with much ability, an elegant and very correct style, a great amount of varied information, extreme energy, much love of fame and celebrity, a passion for work, is unfortunate enough to spoil the effect of her numerous writings; because so many gifts make her believe and allow others to see that she believes she has taken the wrong side, that she forces herself to accept a situation, that she is playing a part, and, unable to give it up, that she forces her gestures, that her very clever arguments do not express her true thoughts, that it is possible for her to show more philosophy, logic and intellect and that sometimes she regrets that she has not done so. Would you persuade me? Show your sincerity rather than your fluency.

Plutarch and Montaigne may be largely used; they made Rousseau; and Miss Maria Edgeworth has many things that are excellent.

But the great difficulty is the proper use of all this material; there is no trouble in finding it. To write for children, to see from their view-

point, to be pleasing without being too childish, and instructive without being tiresome, to remember always one's own youth, demands a clearness of mind, an exactness of logic, a power of imagination, an accuracy of judgment, a cheerfulness of character, that God does not often give to his creatures. Even if there were many men with such ability, most of them would prefer to use all their skill in pleasing the mothers, in gaining consideration from the fathers, in influencing their neighbors, in obtaining places in the government, or in attending to their own personal affairs and amusements. Each one believes that he owes all his energy to his family; in other words, to himself. A desire to serve other families is unusual, particularly when the service would be disinterested.

Such school books as are needed will not be written if the author is to be rewarded only by the knowledge of their usefulness. I admit to my shame that it is more than thirty years since I planned them, and at the request of the Grand Duke Leopold, I made an outline for the Académie des Géorgiphiles of Florence, fully intending to compete and take the prize; but I was never able to work seriously at it, and the attempts that I made from time to time were absolutely inconclusive.

How then can I venture to suggest to others a way of doing what I myself have failed to execute? My conscience tells me that there are many men who are more able than I.

The promise of fame and profit must be made to awaken the dormant ability of the most capable men in both hemispheres. They must be shown that they will stand among the great benefactors of mankind, and (though it is sad that it must be said to them) that they will also accomplish a task that will be of pecuniary benefit to them. For some able men are very poor and cannot give their time to even the most interesting work because it must all be employed for providing the necessities of daily life.

A work so necessary, so absorbing, and for which so few writers are fitted must be well-paid.

I would suggest giving *two thousand dollars* for the best primer;

And *eight hundred dollars* for that which most nearly approaches it;

A *thousand dollars* for the best book on physics and mathematics, suitable for primary schools;

And *five hundred dollars* for the next best;

Five hundred dollars also for the best chronological abridgement of general history;

The same amount for the best collection of historic facts and anecdotes;

And two years in which to prepare for the decision which shall be made in the first six months of the third year.

When good essays have thus been submitted, I suggest that they be printed, both those that have earned the prizes and those that seem if only in part to deserve special attention; and that prizes as large in amount as those already explained, and graded in the same way, shall be given to those authors who, in each of the four subjects, best combine the important materials. For I find it difficult to believe that the most practical will be found at once; and I consider the perfection of these treatises so essential, their faultiness so dangerous, that I would neglect no means of preparing wholesome nourishment for the minds of the young people who are the hope of their country.

I think that with such rewards and with proper care in adjudication the necessary books could be ready in four years, and a number of other ideas would be developed of which secondary schools or colleges might make excellent use.

But with my unhappy knowledge of the human heart, and my certainty of the extreme difficulty of the undertaking, I admit that I see no

other way of securing good class books for the primary schools. And without such books, suitable for early childhood, I cannot see how, in any country, a good national education can be established.

There is cause for laughter and tears in the books that are now put in the hands of children. If a few among us have a certain value, and if the mass of mankind is not worthless, it is by the grace of God who made man an animal for whom justice has some attraction, and in whom the suffering of others inspires pity. But we do not owe it to the wisdom of our parents and instructors.

"Our forbears were barbarians!"

Human nature is poor, miserly and weak minded.

I know of no government in the world whose ardor would not be cooled at the suggestion that from *ten* to *twelve thousand dollars* be spent in finding four little books for the use of children seven years old.

Let us try to overcome this feeling. In public affairs—in all necessary matters—there can be no difficulty too great to be overcome.

It must be the United States Congress that

shall offer and give prizes for the school books to be used in all the States.

When the books are written, they must be printed for the nation, under the direction of a Committee of Public Instruction, of which we will give in detail the duties, the functions and the rights.*

Every child should be obliged to have a copy of the book to take to school. A million copies would be sold each year. The price should be fixed at five cents above the cost of printing and binding in parchment or boards. They would yield therefore a revenue of *five million cents*, or *fifty thousand dollars*, a year.

From this amount, in the first year, the sum paid in prizes would be repaid to the national treasury.

The surplus for the first year and the whole fifty thousand dollars in succeeding years should be divided among the eighteen States, in proportion to their contributions, to be employed by them for the expenses of public instruction.

Thus, instead of the books having been an expense, they will be one of the sources of revenue

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* The *Conseil de l'Université* is now in France an institution of the same nature as the Committee of Public Instruction proposed for the United States.

that will help meet the expenses of national education.

But until the books are written and printed, how can the schools be taught? They must be taught as well as possible, as they are taught to-day; perhaps a little better, if the Committee of Instruction has made some helpful suggestions.

ORDER OF WORK; CLASS RULES; REWARDS IN PRIMARY SCHOOLS

The greatest difficulty in arranging for our primary schools was to provide the books; we have just shown how that may be accomplished and also how in arranging for them we may meet other needs.

But books and masters are not all that is necessary; there must be some rule for the order of instruction.

The course of the primary school should cover three years, and may be prolonged if the master so augments the scope of the lessons that parents who are pleased with their children's improvement and do not wish them to go to the secondary schools are willing *to pay* for having their children continue beyond the three years required.

But even so, there will be each year one-third of the pupils who have only the most elementary lessons. Another third will be those who, somewhat more advanced, can write and read fluently and use their knowledge for gaining real information, especially for acquiring ideas of ethics. The remaining third will study physics and mathematics—the most advanced part of the course in the primary schools.

Thus we have three distinct classes.

And there will be, there can be, but one master.

The school hours must be the same for all, so that the older children can take care of the little ones in going to and from home.

There results a difficulty that must be arranged. If children well advanced and eager to learn are forced to keep quiet and watch babies' efforts to draw letters and make little words, then they would be in the unfortunate position of elder children who have not developed all the mentality with which nature endowed them. And as each lowest class becomes in its turn the highest, all the school, and eventually all the nation, would go through this retarding period at an age when progress is most vital; no one of them would gain the full growth that his physical and mental constitution seemed to promise him.

If the little ones were compelled when they had finished their lessons, to listen to the older children's recitations, of which they could understand nothing, or very little, they would be very noisy; or else the enforcement of silence and quiet would teach them to detest school and school duties. That would be a blunder which would make a true educational system impossible.

And, if some of the children were sent out to play while the others were reciting (apart from the fact that such an arrangement would make school hours three times as long as the children could stay, and particularly those who live at a distance from tthe school) the excitement of the out-of-door game might leave but little eagerness for study.

Both dangers must be avoided.

For the sake of the children, we must not spare ourselves to make study as easy as possible. It is for us men—instructors, founders, legislators, administrators—to examine all difficulties in every detail, to weigh them, to conquer them, to force every one of them to serve us. The one that we have just recognized must teach us how to avoid delaying or discouraging a single one of our pupils and how to discover among them

those whose spirit, ability and character point to greatest success.

There must be three separate rooms in each school, so that the classes can be quite apart, so that each of them can utilize every opportunity, and that there will be no time lost, no energy vitiated by idleness.

The master, of course, cannot be in all the rooms at once, but he is not always needed; it is sufficient that he should go from room to room as he thinks it necessary, and that work and good order should be continued in his absence.

How can this be arranged? By a substitute director.

Where shall he be found? From the class to be supervised.

And who? The most well behaved, the most decisive, the most advanced of the pupils.

From the first day of school the master should entrust to whomever he considers most trustworthy the authority to enforce silence while all are at work.

But very soon mentality, ability, individuality will assert themselves; those who excel the others will be recognized by their classmates and will influence the general development.

For the first month the master should appoint the supervisors.

But if he continue to do so after the children's opinions are formed, he will excite jealousy against the pupils. We must avoid so unfortunate a recompense for merit. Let us arrange so that each competitor and even those who are less ambitious may have a share in making the selection. At the end of each month let a ballot decide who shall be supervisor for the next month, and in this election the master's vote shall count as equal to three others.

We will also take from the ballots the names of the nine pupils who came nearest to winning the election, and they shall have, under the supervisor, nine leading positions, following the order given them by vote. The rest may remain on an apparent and consoling equality. Our classes shall have high stand pupils, but no low stand nor halfway ones. We can approve without blaming. We will not discourage the slow ones, who sometimes have a better foundation than those who are precocious. We will not imitate the pedants who, if they had had as pupils Galileo, Descartes, Newton, Malebranche, Locke, Bayle, Pascal, Montesquieu, Leibnitz, Linné, Franklin, Jean Jacques Rousseau, and Voltaire, would have been quite sure to disapprove one

of their students and have made him wear a fool's cap.

It is wise to give to children who show the proper temperament and ambition, the experience of a position of some authority and distinction.

It is still better to teach them all the pleasure of using their rights of citizenship, to select those whom they sincerely believe to be best and most competent. Those who do not win a place at the election will hope to do so some day, and will approve their own choice. The principle of obedience will be finer and nobler when they have themselves chosen the commanding officer. These children will eventually serve the State better because, having learned to exercise some authority themselves, they will realize the importance of respecting it always.

Every reasonable being,—the child is a little one,—who sees that his vote counts for something, feels a certain dignity to which he holds fast; he likes to show that he is of value. And he who is chosen by his classmates, his equals, cannot be considered a *favorite* of the master; he has more real authority; there will be less grumbling; the master will more easily maintain his reputation for equal justice, and true impartiality.

I am as eager to train the soul and the thoughts as the intellect: by them is the mind made honest, the morals pure and strong.

To consult the children on all matters on which they may have an opinion seems to me to be so good a way to form their judgment, to accustom them to decide for themselves and to reason, to give them character, and to strengthen their natural integrity, that I would not hesitate to allow them to vote on all matters, even for the distribution of prizes.

In the lowest class I would give *one* vote to each child; *two* to each in the middle class; *three* to the pupils in the highest class; *six* to the master; *nine* to each school inspector who takes part in the decision. For prizes in the middle class, *one* vote to each pupil; *two* to those of the highest class; *five* to the master; *eight* to inspector. And for the highest class, *one* vote to each pupil; *four* to the master; *seven* to the inspector.

We may be sure that the prizes are carefully given. Observe the gravity of these little men carrying their ballots to the box, and their interest while the votes are being counted; and the devotion to the new officers which stirs them all; and the shame that would overwhelm the canvassers if deceit were attempted; and the up-

rightness, which will thus become a quality habitual from childhood and will lead to instinctive honesty; and the encouraging pride of those who come near to winning. When I was at that age, I would have preferred to have had one-third of the votes of such an election than the prize itself given by the masters alone without the votes of the pupils. I remember that one of the greatest joys of my childhood was a deputation of my comrades bringing me, from themselves and by voluntary subscription, *a hundred apples*, as evidence of their satisfaction at my success in a public examination. I was then twelve years old; I do not know myself to what extent this little incident has since affected my conduct, but I do know that it has influenced my entire life.

THE NUMBER OF PRIMARY SCHOOLS

I am asked how many primary schools there should be, and what they will cost.

There should be as many as there are good masters for—masters who will content themselves with such payment as the neighboring families will give each month for their children, and who, in consideration of this salary, agree to hold three classes in the same building and to

teach them from the books authorized by the state government. In America families are so rich and so appreciative of the value of instruction that it will not be necessary to give a larger sum than this to the instructors of primary schools.

SECOND PART

SECONDARY SCHOOLS OR COLLEGES

SECONDARY SCHOOLS OR COLLEGES

ON COLLEGES IN GENERAL. HOW THE CHILDREN SHOULD BE SELECTED WHOM THE STATE WILL EDUCATE FROM THE PUBLIC FUNDS. WHAT LANGUAGES AND WHAT SCIENCES SHOULD BE TAUGHT.

WE HAVE seen how far into the study of science it is imperative to take those students who have pledged themselves to an education of culture, of business or the mechanical arts; and what type and amount of education society should require of its members. It is for the primary schools only that the state should decide what books are to be used.

The national feeling that will be established, the definite foundation that will be given to education, will suffice to prevent the professors in the higher schools from choosing any books of instruction or suggesting such forms of essays as would conflict with the methods of the primary schools and would displease fathers, mothers, legislators, and public opinion.

Secondary schools are intended for those students who are being prepared for learned professions, and for those who, having sufficient private means, wish to find in literature an occupation that will be agreeable and lasting. The schools also serve to determine which students are capable of success in the highest fields of science.

The professors should be more learned than is essential for the masters of the school of the Hundred;* it is less necessary to supervise the pupils; the success of each one depending on his own personal worth, he should be left free to choose the methods that best suit him. By this means there will be a rivalry among the colleges which will tend to improve the courses and the scholarship.

Circumstances must decide whether there should be a college for each county or for two counties or for three. That should depend on the population and the wealth, somewhat on the topographical situation.

In some cases, in order to encourage education in poor counties where poverty makes education even more necessary than elsewhere, the legis-

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* The geographical term Hundred is still used in Delaware as the equivalent of a township.—EDITOR.

lature may think it wise to spend a disproportionate amount of the state funds on a local college and leave only part of the expense to the county or counties in which the college is located. In other cases they may prefer to leave the whole expense to the counties.

Those are administrative affairs which do not concern us; our duty is to decide on the organization of the colleges, and what their courses shall include.

Sciences are the keys to the treasures of nature. Hands must be trained to use them rightly. A single day of an educated man of genius is of more value to the world than the labor of a hundred thousand average men for a year. But genius is rare; it must not be stifled. So soon as a child shows a spark of it, he must be cherished, and care must be taken that he is never refused such opportunities as may help him to become a light for the world.

If his family can give him higher educational advantages, their pride in him must be stimulated by providing him with such encouragements and honors as are suitable to his age and his ambitions.

And if his own family cannot, the larger family—the community—must adopt the child,

rather than lose the great man into whom he may grow.

The committee chosen to form plans for the revision of the laws of Virginia suggested that each year twenty pupils be chosen for adoption by the State. The idea is exceedingly wise. By what seems to be a fair estimate of the population of that State, that would mean about one child in each thousand out of those who finish the primary schools yearly. The proportion seems to me to be a just one, in considering the number of men to whom nature gives conspicuous ability. But I fear that when it is realized that the college course will cover seven years and the higher schools five more, the number of pupils supported by the state with an increase of twenty each year will be somewhat dismaying. I hope, however, that the essential part of this idea may become law; and supposing that the provision may be limited to one child in a thousand, or one in two thousand, which I would think sufficient, I will suggest some ideas with regard to the execution of the plan.

It would be unwise for the law to confer on the school inspectors the right to select from one or two thousand children of all kinds—studious and lazy, clever and commonplace—those of small means who to them seemed most worthy

to be sent to the colleges at the expense of the state—that would be too arbitrary.

It would be better that from the one or two thousand pupils of the primary schools the inspectors should consider all those children who by their comrades' votes have received the highest prizes, and from those prize winners should select the student who has been most deserving in ability, in morals, in temperament, and that the financial condition of his family should not be considered.

And when it happens that the first among one or two thousand pupils is not in need of help from the government, I would give him the right to select from the other pupils of his disrict who have had the first prize and who may desire the state assistance, the one who shall take his place and have free tuition in the secondary school.

The highest honor will thus be given to the most deserving. Wealth, which should not help him to his position, should not interfere with it. The benefit will reach one of those who is worthy of it.

The hope of receiving from a friend what one could not gain one's self or of being able to give to a comrade a proof of high esteem, would establish among prize winners—that is to say the best students—deep and worthy friendships that

would add to the happiness of their lives, and of which society would reap the benefit. For friends worthy of the name help to mutual improvement. They are the instructors whose lessons are easiest, and rivals who love each other better for the struggle. Friendship must be encouraged, lest jealousy take the place of emulation.

It is probable that the parents of the pupil first chosen would send him with his friend to the secondary school. Orestes and Pylades, Damon and Pythias, are not separated. They will be found side by side helping each other to succeed whether in the ranks of the army, or on the benches of the members of the House of Representatives, or in the chairs of the Senate, or at the table of the Philosophic Society.

And we must believe that our children will be finer because, instead of leaving them to the foolish amusements usual at their age, we have given them opportunity,—we shall have forced them to realize their possibilities, to make decisions, to exercise the powers of men. Our books will instruct them as best they can, our institutions will develop them.

At the rate of twenty students a year supported by the state—the course of the secondary school being for seven years—one hundred and

forty will be always maintained; seven in each college, if twenty are established; fourteen, if the State of Virginia is limited to ten colleges.

I would prefer the smaller number because, general and fundamental instruction being assured in the primary schools with their carefully chosen books, I believe that for literary and scientific instruction *quality* is better than *quantity*, and that sixty professors are more easily found than a hundred and twenty; especially as the sixty could and should be better paid; and thus men of ability will be more disposed to give their lives to professorships.

I hope that by careful arrangements of our classes we shall be able in seven years, with six professors, to teach the students the principles and the use of four foreign languages, and seven branches of study which will include many kinds of useful knowledge.

The four languages would be Greek, Latin, French, and German.

By studying the grammars of those languages all the students would learn much more of the grammar of their own language and would compare Greek, Latin, French, and German literature with English literature.*

* This book was written for a nation in which English is the native language. If some of its theories should be

And in order that the study of languages may be less dull, that the intelligence of our pupils shall be trained as well as their memory, that a new language shall not offer them merely a stupid list of words differently pronounced, but that it may give them a new wealth of ideas, we must direct each professor of language to give, in that language, instruction in some branch of science.

It is the fault of schools or instructors, if having studied a language, the pupil has learned nothing else. It is no more difficult, when one begins to write and speak a new tongue, to become familiar with it by using it in the study of another subject.

I think that the same professor could teach Greek and Latin. A year should be given to each language, and the first one should be devoted to Greek. It is much easier to learn than Latin, especially when it is studied first. It leads naturally to the study of Latin of which it is to some extent the parent language; while on the other side, a knowledge of Latin makes the study of Greek much more difficult and is influencing the

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adopted by the schools of France, I would advise that the English language be given the place that French may have in the schools of the United States. I do not believe it necessary in either country, to teach, *in the colleges*, Italian or Spanish, which are both only dialects of Latin and are easily read and understood by all to whom the Latin tongue is familiar.

decline of its study in European schools. Their spirit is different. Latin is hard, severe, nasal and insurmountably limited. Greek is smooth, rich, full of harmony; capable, from the happy formation of its words, of expressing every thought and of explaining all arts known and to be known. Young people who study Greek while they are ignorant of all languages but their native tongue will more thoroughly understand the principles of grammar; and whether they become statesmen, philosophers or poets they will have greater freedom, variety, rhythm and elegance in their language. Cicero admitted that his perfect knowledge of Greek had greatly helped him to become the greatest of Roman orators. *Graiis, dedit ore rotundo musa loqui,* said Horace.

To one who has not studied Greek, and Greek first of all, the scientific words necessary in the study of physics, medicine, mathematics, and even metaphysics, rhetoric and grammar, are so many enigmas of four or five syllables, and very difficult to learn. With Greek, one finds that the very words are definitions; they help to explain what one says and what one reads. Hence progress is far more rapid.

Since he must help his pupils to read with benefit and to criticise intelligently all the best

classic authors, the *Professor of Greek and Latin* will naturally be a *Professor of Literature*, whether he wishes to be called so or not.

After the professor of French has taught his pupils the principles of that language, he should have them apply it to the study of moral philosophy, and thus he will become *Professor of Ethics*. That will not be difficult for him, since it is already customary to give English pupils *Télémaque* for the first French book that they are to study, and since there is no other language in which philosophers discuss essential truths with such beauty of expression. When he points out the gentleness and sublimity with which Jean Jacques and other philosophers describe the duties of man and the happiness that results from their fulfillment, the professor should not lose the opportunity to remind his pupils of the schoolbook from which they learned so much in the primary school and to encourage their patriotic gratitude to the government which, in their childhood, gave them their first ideas of right and wrong, and of which all subsequent studies can only be a natural development.

The *Professor of German*, who will point out that his language closely follows the Greek in its grammatic methods, although it is very different in its pronunciation, will use his rich and

accurate vocabulary for teaching *logic*, the analysis of thought, the science of human intelligence; he will be *Professor of Mental Science*. There are many rather dull German and Swiss writers on this subject; and, comparing them with Locke, he will show the beauties and defects of both languages, the roots of which are common to both, and of which German is the more exact and English, while less elaborate, is more picturesque and more forcible. He will require of his pupils, or will make for them, translations into German of selections from Locke, who is best studied from selections, because in answering ancient prejudices, he explains too elaborately. While studying the language, judgment will be developed.*

The fourth professor, instructing the fifth class, will teach *geometry*, including conic sections, in the English language; *algebra*, the tool and interpreter of geometry; the *physico-mathematical* sciences, such as mechanics, hydraulics, optics; the elements of civil and military architecture; navigation; and some essentials of drawing and coloring for maps, plans and archi-

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* In arranging for the course in a French college, the professor of German would find in the language of his students many works by worthy pupils of Locke, the sagacious Condillac, Cabanis, Tracy, Gérando, Maine-Biran, La Romiguière. He will find only too many.

tecture. Perhaps he might even be able to include as a form of recreation some knowledge of drawing men and animals, in accordance with illustrated treatises published in Europe explaining geometrically the correct proportions as shown in nature.

The sixth class, taught by the fifth professor, will study *chemistry, physics,* and *natural history,* including only the general principles of zoology and botany. The professor will succeed best if he illustrates his theory and its developments by philosophic and informal talks on the different natural sciences which are all only branches of one science.

And last, in the seventh class, intended only for those students who have been through the six lower ones, and entrusted to the sixth professor, are taught:

The *law of nature,* of which the principles, already outlined in the primary schools, have been developed in the class of moral philosophy and which is in reality a science of very limited extent;

The principles of *political economy,* which are a derivation of the law of nature and will call for very little time or effort from the student;

History, of which the study with every detail

demonstrates the wisdom of the laws of nature and the truth of political economy;

Geography, as concerning history;

And, to crown all, *national law,* by which I mean that which concerns the Constitution,—not at all the knowledge of the legal profession which at present seems to me to need reforming in America, probably by legislature, and to have nothing at all to do with a rational education.

We have planned for six professors in our secondary school, or our *college.* There are no more than that in the *great college* of William and Mary at Williamsburg; but I do not see how we could do with a smaller number, nor how we could have fewer studies.

I am inclined to doubt whether six professors for the six or seven classes and ten branches which we have considered will be sufficient, especially if some of the pupils live in the college—which would be necessary for those who are supported by the state, helpful as contributing to the fund for their support, and very beneficial to discipline. For disturbance in schools always comes from outsiders who bring with them bad habits and insubordination.

But if the college receives boarders, and if it has the success for which we hope—if a large number of citizens send us their children—there

must be a *Principal* who will have economic charge of the house, who will have a general supervision of both professors and students and of the necessary servants. The *Principal* must be a man who will feel for the students of all classes and ages a paternal interest, who will consider them and treat them as his children, will listen to their grievances, adjust their difficulties, comfort their sorrows, strengthen their courage, study their needs and their happiness even more than their education.

The *Principal* might possibly be one of the professors, but it is far more important that he should be a man well informed in all sciences, all languages, all literature, that are taught in the college; a *pentathlon* better educated in every branch than the individual professor himself, able to give good advice to everyone, and subordinate to no one.

The *President* of the United States should have ministers and should guide them all; he should not himself be a minister. There should also be under the professors at least two *assistant professors,* who will take the place of a professor in case of his illness and who may be expected to fill vacancies, though that need not be assured to them; they should also *superintend* the work done out of class, see that order is maintained

during recreation and in the dormitories, and have all responsibility for the conduct of pupils out of classrooms.

These last duties should not be entrusted to an elected pupil, for the necessary qualities that would make him fit for the duties are not evident and external as a capacity for work. At this point the supervision must be of a kind that one boy would not accept from another; it must be individual, and discriminating, and beyond protest. The position would be concerned with situations where natural temptations becoming stronger every day would bewilder an immature judge.

This supervision at all times is indispensable. The normal family of ten to twelve children has two supervisors, the father and mother, of whom watchfulness is demanded by the strongest and gentlest sentiments of nature. A college, which is an artificial family of a hundred children or more, cannot avoid the same responsibility.

It would be unwise to ask the professors to assume these important responsibilities, though each of them should be willing to cooperate with the supervisor when he sees the need of his help. But under ordinary circumstances, they have enough to do in preparing their lessons, in fitting the lessons to the characters and uses of their

pupils and in adjusting their courses to meet the abilities of the more or less advanced pupils. After every period of recitation the professor must have time to think of the next one and time for thought that he may classify his ideas, improve himself, enjoy for a time the solitude, half-lazy, half-studious, that every literary man craves as a result of his labor. A professor should be a brilliant scholar who, while occupied by education and constantly observing its development, is quick to see faults in existing methods of instruction, to select necessary school books, and to decide how they shall be used.

If our professors were allowed to become *day-laborers,* having their pupils always on their hands, they could accomplish none of those other duties which are so important to their pupils and to general education. Those who appoint the professors would not wish them to be so overworked that vexation, fatigue and monotony would soon exhaust their ability.

The *Principal,* having no classes, exercising a general authority and free to dispose of his own time;

Professors, who have no responsibility except for the instruction of their pupils;

And *assistant professors* who live with the pupils during their time out of class, and who, in

emergencies, can take the place of the professors, seem to me to be the necessary officials.

I do not know whether such an organization exists in the college of William and Mary; but if there is not, I am quite sure that in that college there are some matters that do not work as smoothly as might be wished by philosophers, scholars, and statesmen.

Even by giving the professors two assistants to help them outside of the class rooms, there will be some difficulty in arranging so that the few professors whom we are considering can instruct pupils of varying ability in all the branches of study that we think indispensable.

Six professors, seven classes, ten courses, twenty sciences, and more than forty methods of study, to advance steadily without confusion, without interruption, without delay—that is no small matter!

And it is for us to anticipate, to calculate, to decide how the work is to be done, for it is not enough to say: Such and such a course shall be adopted, such and such a science shall be taught. It is not enough to accumulate elements, especially elements mixed with laziness, ambition, arrogance and vanity, and to say to them *extricate yourself, Chaos.* Chaos cannot extricate itself. If we have not considered all the difficul-

ties of execution, if we have not in our minds and even on paper every detail of organization, we have done nothing. A general who orders a march in several columns, should have counted the steps of each corps, should know at what hour his infantry, his cavalry, his dragoons, his scouts, his artillery, his provisions, his baggage, will each be at a given place; how they will be halted there; how they go on again; and how much time must be given to each in accordance with his distance and the obstacles of the road. If the general forgets the slightest difficulty, there is a catastrophe.

We shall therefore try to indicate the order of studies and the daily arrangement of time in our college.

We will suggest a schedule as we think it should be when it is in full activity. It is with that end in view that everything must be planned from the beginning.

We will point out afterward a gradual way of reaching that end.

But, before starting on these details, we have two observations to make.

The first is that it must be remembered that the course will cover seven years, and it must be so arranged that the studies in the last years will not tend to forgetfulness of those subjects

studied earlier. That could not happen in our old colleges, because in them five years were devoted to a fairly good course in Latin and one to very imperfect Greek; then a year to rhetoric, which was only a prolongation of those two courses, and one or two to philosophy, which at least, in France, was nothing at all.

In our plan, on the contrary, we want real knowledge and on many subjects. We must therefore so distribute the studies that when we have finished, the first subject and all the others will be as distinct in our memory as the last.

Our second observation is to assure our young people that in providing assistant professors we have not proposed to take from the students the pleasure they enjoyed in the primary schools of selecting the best among themselves.

Each class in college, as in the primary school, will help to award the prizes, and every month each class will elect its head. In every election each pupil shall have one vote, the assistant professor two, and the professor three.

The student who is head of his class, but for purposes of study only, will for one month, supervise all work done in the absence of the professor; but will himself be under the direction of the assistant professor.

And, those points understood, we will give a schedule for the work of all classes.

We have entered on this schedule only the work that is to be done in the class-room. It is intended only to indicate how the professors can best use their time; how the different studies can be managed simultaneously without interfering with each other—indeed with benefit to each other if the Principal is a man of ability and is careful, in general conversations, to point out and discuss the bearing of one study on another and to start the pupils on the road of the philosophy of science.

Between classes, before and after them, there will be time for what are called tasks, when the pupils work, study, learn, experiment, by themselves. That is the individual work which is done by each class under the supervision of the pupil who is head of the class and who is himself superintended by the two assistant professors who go from class to class. The first of the two will have four classes under his inspection and the second three. But each of them may, in case of need, enter the class-room usually supervised by his colleague and give such orders as he may think wise.

At five o'clock in the morning in summer, six in winter, the pupils should be properly dressed

and in the general assembly room. They will wear their hair short and will comb it themselves. The assistant professors, who will superintend their dressing, will be sure that all the pupils wash their mouths, their hands and their faces —which is very necessary for their health and for the preservation of their teeth. A rising bell should be rung a quarter of an hour before the assembly.

A prayer shall be made by a pupil, head of his class. All the heads of classes shall have this duty in succession, each one reciting the prayer in a loud voice one day in each week. All the college, including the Principal, the professors, instructors, pupils and servants should be present and should repeat the prayer in a low voice. There should be no excuse except illness.

This prayer should be so worded as to be acceptable to all religious opinions and to offend no one, in order that no parent may object to hearing it repeated by his child. It should be inspired by *The Lord's Prayer*. We will offer one as a suggestion.*

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*Our heavenly Father!
May thy name—pronounced with gratitude, love and respect—be our consolation and our strength.
May our will be submissive to thine and may our actions obey thy wisdom as the stars follow the laws ordained by thy goodness and power.
Give us this day our daily bread. We will try to deserve it by work done for others as well as for ourselves.

After the prayer each class shall go to its own room and under the direction of its head will finish the *tasks* of the previous day. At seven o'clock the class will be taken over by the assistant professor and from him by the professor.

Breakfast will then be served and will be followed by recreation until eight o'clock, when the classes will separate for recitations to the professors, except the class in Latin which will recite in the evening.

The professor will have an hour to examine the *tasks*, each signed by the writer, and he may begin the recitation by praising or criticising the papers as they deserve.

After the morning lesson there will be a half-hour period of recreation. Then a half-hour of

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Keep us from bringing on others sorrows that we are unwilling ourselves to bear.
Help us to be always ready to offer others the kindness that we want shown us.
Teach us to protect animals and plants in imitation of thy benevolence.
May the realization of thy goodness give us strength to resist temptation and keep us from all vice.
Accept our repentance for our faults. Grant that it may not be useless. Give us opportunity and ability to redeem them if there is time, or to atone for them as best we can, and in thy mercy teach us to forgive those who have offended us, and pardon us in our turn.
Help us to bear inevitable sorrows; may our trust in thee teach us to bear them patiently in the hope of a happier future.
We thank thee for allowing thy children the comfort of offering their prayer to thee.
So let it be!

work for classes that are to be reviewed on their previous studies, for which the professor will have arranged with the head of the class or with the assistant professor.

The other classes will have two hours of work under their head and the assistant professor. This work will be on the lesson that they have received in the morning.

Dinner will be at one o'clock. It will be preceded and followed by prayers, for which a suggestion is given in the foot-note.* Not more than a half-hour should be spent at the table. After dinner there will be recreation until three o'clock.

From three o'clock until half after four, class work will be resumed under the supervision of the heads of classes and the assistant professors; the work will be principally the preparation of the *tasks*.

From half after four till five there will be recreation and time for lunch.

**Prayer before the meal.*

Our heavenly Father!
Bless to our use the nourishment which thy Providence grants us.
We do not receive it from our work alone, but because of thy goodness and from the work of our brothers.
Keep us from intemperance which would make us less able to repay them, and help us to be worthy of thy benefits.
So let it be!

From five to seven will be the evening session in which the professors will explain the difficulties that were met in the morning's lesson and will thus help the pupils to prepare the *tasks* which they must present, neatly written, at seven o'clock the next morning, to the assistant professor.

In the evening class the professor will allow the pupils to do some of the work by themselves. This class will accomplish what in the schedule we called *class work;* but this work, done under the supervision of the professor and sometimes with his help, will be more profitable than a new lesson, and will teach the head of the class how to direct the class when it is in his care. The evening work will last until half after seven. The morning lesson will last until half after ten, for classes that are not obliged to be in session from eleven to one for the benefit of students from the higher classes who return to the lower class for review.

It is easy to see the importance of these reviews of subjects studied earlier in the course.

As each pupil has but one year for each lan-

Prayer after the meal.

Our heavenly Father!

Who hast ministered to our need, accept the homage of our gratitude, and grant that it may help us to minister to the needs of others.

So let it be!

guage, or each subject, our students will not be perfectly educated in any branch; and they would entirely forget a study which they had finished if they were allowed to drop it for the rest of their time in college. But during the year following any course they will be required to take two lessons a week with the class that is studying that course—a kind of review which will impress it on their minds.

And in each year thereafter they will take one lesson a week in each subject, which will keep them on the alert and prevent forgetfulness.

They will be obliged, in their studies, as statesmen are in their labors, to have all of their knowledge ready and to have one set of ideas constantly reanimated by another, by using them to illustrate each other. These little men from ten to seventeen years old will in this way become familiar with those methods of life and work which older men must follow and they should develop all the character and talent of which their minds are capable.

Let us consider the number of lessons which they will receive from their professors in each class, during their whole course, apart from the individual work that they will do under the heads of their classes and the assistant professors.

Classes or Courses

Greek—language and literature,	678 lessons.
Latin—language and literature,	627 lessons.
Moral philosophy and French,	832 lessons.
Mental science, logic and German,	781 lessons.
Geometry, algebra and physico-mathematics,	729 lessons.
Chemistry and other natural sciences,	677 lessons.
Natural and national law, political economy and history,	573 lessons.

The classes in chemistry and in Greek will have practically the same number of lessons. The course in Latin will have no less; it will have one-sixth more than is given in two years in the best colleges in Europe. That is sufficient to enable one to read and to enjoy the standard Latin authors, who not having been exhausted in school or college, offer enjoyment for the rest of one's life.

The classes in ethics, in logic, in geometry, and in modern languages will be somewhat more thorough and no one can think that a mistake.

As for the class in natural law and history which will have only five hundred and seventy-three lessons,—fifty will suffice for doctrine and

science. The rest, applied to real scholarship, will give considerable knowledge of the principal facts and will impart a taste for reading and for historic research. With those tastes one studies history while one's eyesight lasts, and longer if one has a child or a friend who will read aloud.

Let us return to the schedule for the day. We arranged that the lesson, or the work which will sometimes last until half after seven for the three lower classes, will more often for them, always for the others, end at seven.

After the evening lesson there will usually be an hour, and for the few who have had an extra hour of work during the day there will be an additional half hour, of liberty which the students may use as they please. Those who fear that their tasks will not be ready at seven o'clock the next morning may work at them without any supervision except what is necessary to prevent disorder. Those who have completed their tasks, or are confident that they can do so between morning prayer and breakfast, may spend this hour in conversation, or in the garden, or in writing, or in drawing, or in reading of any kind, provided that no licentious book ever enters the institution. But, under all circumstances this evening recreation must have no romping or noisy games; for some pupils have work to do

and must not be interrupted; and supper will be better digested and sleep be more restful if the last hours of the day are not too exciting.

At eight o'clock supper is eaten. The meal will be a lighter one than dinner and should be finished in twenty minutes.

It should be followed by a short prayer.

The forms that we have suggested for use before and after meals may very well be supplemented by those used in England and America for domestic occasions. There are many which may properly be used in families of any religion and those are all that are necessary.

It is a good principle in education never to begin the day or to sit down to a meal without a general prayer. Prayer is social. It teaches us to consider ourselves as brothers of one Father.

It is imperative that any prayer for general use shall be phrased in such terms that the maxims and sentiments expressed shall offend no sect. No one should be shocked or insulted. Let us give to those religions which seem most opposed some opportunities of seeing how much we all have in common and how easily bridges of tolerance may be built across the torrents of opposition.

General prayers, chosen with these precautions, suggest a brotherly union, remind us of

the absent, warm our hearts, arouse thoughts that are wholesome for us all. But these very thoughts can never be helped by general discussion or controversy.

Observation, reflection, persuasion are in human nature a part of the individual. No man believes or can believe except by his own effort; for no man can reason except with his own thoughts, or be convinced except by his own logic.

If, therefore, we wish our young people to feel an honest piety they must not be compelled to attend religious ceremonies. We have tried, under varying circumstances, to teach them to think, to know, to wish, to act, to cast their own vote, not merely on suggestion; and perhaps that is the most valuable of our ideas for national education. But if they have become free and intelligent beings, if they have learned to use their own judgment in their relations with their work and their friends, why should we not show them the way to a similar and more important development of the soul, that they may examine their own actions and judge between themselves and their conscience, in accordance with the ideas of good, or right, of justice and honesty, of which they learned the principles in primary

schools and of which they were shown the charm and value in the class of moral philosophy?

Let us try to help each one to find something in his own nature, quite apart from the opinions of his instructors, that will direct his opinions and his actions and guide him in his relation to the *Supreme Intelligence*.

The moral standards that he is taught are probably attractive to him, for they are attractive in themselves; but the one he lives by is the one he formulates for himself.

I hope, therefore, that we can persuade our children to make a careful and sincere examination of their own consciences after they have gone to bed. It will lead them to form good resolutions, helpful plans and mental prayers, dictated by personal conviction and by sentiment—the prayers that come from the heart and strengthen the soul.

There can be no rule in such a matter. Only say to them, *Think of that;* let them all answer, *I will think of it.*

Those who are honest and good will gain greatly. The mediocre ones will improve. As for the bad ones—but God did not make bad ones and our education must prevent their becoming so! Many who are irresolute will become strong.

These thoughts and this hope lead me to believe that the evening prayer should be very different from all the others.

In the morning we return to society; it is right to recognize our relations to our brothers and to the world by a mutual and affectionate summing up of our duties and a pledge to fulfill them. In the evening we are alone with nature, it is the time to retire within one's self and face the Creator.

I think that the few words and the last to be said before the pupils separate for the night should be only a preface to the self-examination that should end the day and precede sleep.

I suggest the following formula, or one resembling it and no longer:

"Our heavenly Father,

"We thank thee for having given us this day.

"As it ends each of us will review in his memory all that he has done in order to thank thee for his good actions and to implore thy mercy for those that deserve reproach.

"So let it be!"

That prayer should be made at about half after eight, when supper is finished. Everyone should

be in bed at nine. At the age of innocence and honesty such a promise will almost surely be carried out by most of those who make it.

Perhaps after they are in bed the assistant professor might remind them by some such phrase as, *"Good night, my friends, now is our time for self-consideration; and I leave you to your thoughts;"* or something of the kind. But he should never permit himself to ask the result of his suggestion. No questioning of consciences! Never suggest untruthfulness to those who may have been negligent. Some other day they will be more careful and will reproach themselves for the failure.

Our only responsibility is to suggest a helpful idea, to do it at an opportune time, and to give children the habit of self-examination when they are quite alone, entirely free. The quiet recreation in the evening which will last from supper until bed time, should have a tendency to prepare them for this exercise of reflexion.

Every man who has not chosen evil ways, and who has opportunity to look into his own mind, will be just and will advise himself wisely. To enlighten and develop the conscience, to teach it to use its own reason and intelligence, independent of all human authority, in the presence

of God alone—that should be the great service we render to youth.

RECREATIONS

We have done what we could to make our pupils happy; for unhappiness would degrade and harm them. And for whom is happiness if not for youth? By giving variety to their lessons we have tried to satisfy the instinct of curiosity. But curiosity does not always mean love of work. In childhood it passes as quickly as it is kindled. Work is the foundation and also one of the consolations of life. The habit of industry must be learned when one is young; that is the chief value of public instruction, where activity is stimulated by emulation. And yet even emulation must not be abused, for it has not the same effect on all. A medium must be sought. The standards of all institutions should be considered from the achievements of mediocrity.

We must then consider the question of recreations, which are so called only because they are a kind of *re-creation* of strength and courage.

We have allowed for breakfast *one hour,* of which only one quarter need be spent at the table.

We have beside this arranged *two* periods of recreation of *two* hours each in every week, when classes are being reviewed, and a *general holiday for an entire afternoon.* We think that is enough.

For Games and Liberty

	Hours	*Fractions*
After breakfast - - -	–	¾
After the morning lesson -	–	½
After dinner - - -	1	½
For lunch a half-hour, of which half may be spent at the meal and half for amusement - - -	–	¼
Between the evening class and supper - - - -	1	
After supper - - -	–	½
Daily total - - -	4	½

We ask those who think it too much, not to judge us thoughtlessly from their heights of scholarship, but to look back to their boyhood and see whether they would have reproached us for the time lost, whether, indeed, they would not have promised us better work if we had been more interested in their play.

We will even ask them to tell us how, with all their love of work, they distribute the hours of their day; how many they give to conversation, to out-of-door exercise, to visits, to light reading, to chess, to digestion, to idleness.

Those who do not allow themselves four or four and a half hours of entire relaxation, those who work regularly for nine hours in each day, will willingly admit that they are *unusual men,* whose methods are not to be recommended for children.

Moreover, it must not be thought that all recreations imply loss of time. It is then that the children will revert to their natural impulses, will observe and study for themselves. It is then that the desire to excel will lead some to work while the others play. And many while exercising their bodies will acquire information as useful to their minds as that which they learn in class. Some of them will learn to handle the saw, the plane, the scraper, the chisel, the gouge, the hammer, the file; we will permit the use of these tools in our recreation-room and each pupil shall have his own place to be used as a workshop or laboratory. Others will make meteorologic observations, or do experiments in physics, mechanics, chemistry. Others, and they will not be the least valuable, will apply themselves to agriculture—learning to sow, to plant and transplant, to prune, to graft. In new schools, where land is not very dear, each of these last should be given a little garden with liberty to plant it as he pleases: *Nihil est agricultura melius, nihil*

uberius, nihil dulcius, nihil homine libero dignius, said the noble Cicero. We will study their dispositions and we will predict their destinies by the tastes they show, by the choice they make of their voluntary employment and their personal pleasures.

Intelligent employment of their liberty, with regular work, varied by some knowledge of their immediate surroundings, should make of them men of forceful character, honest minds, and trained intelligence.

That is enough for pleasure; we have yet to finish our work.

REWARDS

We must arrange for the distribution of prizes, promotions and honors; we must choose from the pupils supported by the State those who seem to deserve that their education should be carried beyond that given in the colleges.

We will decide by the same principles of liberty, frankness, honesty, which we invoked for answers to the same questions in the primary schools.

We will continue to accustom our children to think as men and citizens by giving them some of the duties of men and citizens.

Every class will have a first and second prize each year. They shall be awarded by a plurality of the votes of all the pupils in the class, to which shall be added two votes cast by the assistant professor, three by the class professor, and four by the Principal of the college.

At the end of the seven courses there will be a more imposing ceremony. It will be decided by the votes of the highest class and of the whole staff, with due consideration to the reports for the six preceding years, which pupil shall be considered to have accomplished most. He will receive a book of considerable value and a laurel wreath. That will be called the *general prize*, or the *first prize in all subjects*. If the successful pupil is one of the State's pupils, he shall be given his expenses at a University, or a special school. If, on the contrary, he is a boarder or a day pupil, he shall have, beside the prize, the pleasure of appointing from such of the State's pupils as have had two first prizes or a first and two seconds, one who shall be sent to the special school, or the University. If no pupil has had that number of prizes, none will go to the University that year. The State should not send the incompetent.

The pupil who is to be sent by the State to the special schools, whether he is chosen for his

own ability or for his ability and the friendship of a better scholar, *principibus placiusse viris non ultima laus est*, will choose the profession that he wishes to follow and the kind of study that he needs. His decision made, he will continue at the college for one, two or even three years as a special pupil, to review such lessons as may best prepare him for the work that he wishes to undertake in the schools of the University. The State will continue his allowance. He shall be given a room to himself in which to study, and shall be treated as a man.

The term of one, two or three years of extra preparation in college is, first, for the purpose of a better preparation for the pupil—already well advanced—who is destined for the highest scholarship; secondly, to prevent pupils from being admitted to the special schools of the University before they are eighteen or twenty years old. Those schools are not planned for children nor for too immature youth. They are for instruction in professions which can only be practised by men, mature men.

All the boarders and day pupils who intend to study for one of these professions, knowing that they will not be received at the University until they are nineteen or twenty years old, will of their own accord take two or three years of

review work. These pupils will increase the income of our colleges. And among these older pupils, many who do not learn quickly, but who are nevertheless more determined and have surer and more profound minds, will develop, during their preparation, an ability that was not apparent when they were with classes. In the special schools they may become men of mark. It is well that pupils who pay their own expenses should have this opportunity. But students educated by the State must show their ability earlier.

This method of selecting pupils for advanced work should benefit both the colleges and the University.

ESTIMATES OF THE COST AND ITS DIVISION

Will the plan of public education which we have offered be a very expensive one?

Even if it should be, that would be no reason for rejecting it. Of all the things that one can buy, knowledge is the one that will most surely be worth the price.

But it is possible that it would not involve great expenditure by the State, and would not cost much more to private families than an education at home. Only well-to-do families send

their sons to colleges. Others will have a sufficient education in the primary schools—a better one than that of any other country. And families that wish their children to have a scholarly education will not hesitate because the work of two boys at college costs more than of three at home.

On that basis, the college will have a great success, and the professors a very excellent position.

Let us examine the details; nothing should be done blindly.

The ground for the college will cost nothing. In townships, where there are only little villages, the owners of land, impressed by the need of increasing the value of their property and of attracting a larger population, will willingly give a location for the institution; and the State must insist on sufficient space for proper buildings, in order that class rooms, assembly and recreation rooms, living rooms, the grounds for exercise, the kitchen garden, the pupils' gardens, shall not be cramped. In large cities, it will be easy to obtain subscriptions for the purchase of land and perhaps for part of the construction; subscriptions are an excellent American custom. We will show further on how the savings resulting from the vacancies that are inevitable at the

beginning will pay for the greater part of the building. The State should pay the rest. Ten fine and very large colleges should be built in Virginia. In every State of the Union there are men, interested in the plan, who are better able than we are to estimate the cost of construction.

We can, however, estimate the yearly expense of instruction.

And we propose to give to the professors from the public funds only a very small salary, just enough for them to live on, if the college had no pupils; about as much as a laboring man is paid. The rest, which should supply the comfort that is deserved by an educated man who gives all his time to exacting duties, will be paid by the students and the amount will be determined by their number: by the popularity that the ability and interest of the Principal and the professors are able to secure for the school and the eagerness of families to send their children to it.

The Principal, only, should have a higher salary.

The servants, who shall be a cook, a porter, and two men to make beds, carry wood, clean the bed-rooms, classrooms and house, should not be paid more than half as much as half the wage of a day-laborer. The rest of their wages, like

the greater part of the masters' salaries, should come from the students.

The salaries, or expenses to be paid by the State would be:

To the Principal	500 dollars
To each professor 300 dollars, and for six	1800
To each assistant professor 200 dollars, and for two	400
To the cook	200
To three other servants 150 dollars each.	450
For annual prizes and the up-keep of the buildings	150
Total yearly for each college...	3500 dollars
And for the ten colleges proposed..	35,000 dollars
To which add the cost of one hundred and forty pupils of the State, or fourteen for each institution, allowing 150 dollars each	21,000
If one adds the higher special schools which will cost as much as three colleges	10,500
And the support of fifty State pupils at these special institutions	10,000
The national education of Virginia will cost	76,500 dollars

From which one may judge, in proportion to the population, the wealth, the capacity of the

sixteen other states, the cost of public education in the whole of the United States.

But it would be the best national education that has ever existed in any country.

Moreover, I do not think that the Republic of Virginia should take on itself the cost of the special schools which will form the University. I think that there need be only one such establishment in the United States, that it should be at the capital—at Washington City, and supported by the Union. Each State could send there at its own expense a certain number of pupils; and I would not advise Virginia to send more than ten each year, which would mean that she would always have fifty in the University. The courses would, of course, be open for any students whose parents wish them to study those professions which are best paid, though they require a long preparation; or for young men who like study for itself and care to consecrate to it some years of their lives.

If this plan were adopted the withdrawal of the University from the State of Virginia would reduce the expense of education in that State to *sixty-six thousand dollars*. It is also to be remembered that this estimate provides for *thirty-one thousand* for the support of *one hundred and forty* young men of ability but no fortune in the

colleges and *fifty* others in the University. If it is believed that this is too large a number, which is my own opinion, it might be reduced to half, but not less. In that case, the expense for Virginia would only be *fifty thousand five hundred dollars,* and it would not reach the full amount at once, as the State pupils would be chosen each year and the full number would not be reached for twelve years.

Let us return to the expenses of the colleges, to their organization, to the question of arranging for the comfort of the underpaid professors, who are nevertheless eager to give all their ability. We must remember our maxim, that in matters concerning establishments and institutions, unless everything has been properly calculated, properly provided for, especially for its finances, nothing has been accomplished. For as economists teach, *the measure of subsistence is that of population;* and if our professors and their assistants do not see any certainty or hope of an honest fortune, we shall have no professors or only poor ones, and our education will be worthless.

The income of the principals, the professors, the instructors, and everyone attached to the service of our colleges will be, as we have already explained, composed (1) of a fixed wage; (2)

of fees paid by the pupils; fees which shall be of a fixed amount, but of which the total products will be indefinite, and which because of that possibility of increase will stimulate the energy of the professors and introduce a very valuable rivalry among the colleges.

There will be three classes of students.

Those supported by the State, which will pay for each of them *one hundrd and fifty dollars* yearly.

The boarding pupils, whose parents will pay *two hundred and twenty-five dollars* yearly.

And the day pupils, who may take any course they please—all the courses if they care to—but who will not eat nor sleep in the house, nor remain after classes, for fear that they may introduce a lack of discipline during the hours of recreation. These pupils will only pay *one hundred dollars yearly.*

We know that the *one hundred and forty* State pupils divided among ten colleges would allow *fourteen* to each college; if there were only *seventy,* which I would prefer, there would be only *seven* to each.

We will suppose that each class in the college will have *nine* or *ten* boarders paid for by their parents. Let us consider only *nine;* that would mean *sixty-three* boarders in each college.

To those let us add twelve *day pupils*. The number of these will be greater or smaller depending on the towns in which the colleges are located. We are basing our estimate on what seems to us probable in the usual towns of the State of Virginia.

In calculating the number of rich families who would wish to give their children a scholarly education, and who, living in the country, have no schools near by, it seems to us that the State of Virginia could count on *six hundred* resident pupils, who, distributed among ten colleges, would mean sixty for each.

The distribution would, of course, not be so even. A popular college might have *ninety* boarders; whereas one less well thought of would have only *thirty*. But that will be a reason for the selection of good professors by the *Principals,* and for great effort by the professors to support and improve the reputation of their institution; their income will depend on it. We will examine the lowest estimate so that we may know the smallest income of our officers of public education.

There shall be taken from each pension or salary, from the Principal to the servants, one hundred dollars a year for the expenses of food.

And, with the economies that result from purchasing for a household of more than eighty people, where the food must be wholesome and abundant but not extravagant, that will be a generous fund.

The surplus of the State pensions, after deductions for laundry, heat, lights, and the costs of the class-rooms, such as paper, pens, ink, etc., will help to increase the fixed salaries.

On that basis we suggest a plan for the division of the funds paid by the different students to whom our college gives instruction.

Pupils Supported by the State

Amount to be paid by the State for each of these pupils 150 dollars.

Food	100 dollars
Laundry	6
Heat and lights	6
Paper and other small expenses	5
To the professor of ancient languages, who instructs two classes	4
For each of the other professors three dollars	15
The assistant professors	4
Each servant one dollar	4
Total	150 dollars*

* We have not included any estimate for clothing the State's pupils, because we think that in the United States there is no family so poor that it cannot clothe its child if the State supplies his education and support.

Boarders Supported by Their Parents

Annual payment 225 dollars.

Food	100 dollars
Laundry	6
Heat and lights	6
Paper and other small expenses*	8
The Principal	20
The professor of ancient languages	15
Each other professor ten dollars	50
To the first assistant professor nine dollars, to the other seven	16
Each servant one	4
Total	225 dollars

Boarders who have finished their seven years in the college will be permitted to stay for two or three years to improve any particular branches of study and to assist as *veterans*† in any class they may choose. We have already advised that this extra preparation be required of State pupils selected for the University course. It will be equally necessary for other pupils who are to go there, as they should not be received before they are nineteen years old.

It is reasonable to suppose that from *sixty* there will usually be *three* or *four* who will em-

* This contribution for stationery, etc., is larger than that charged to the State's pupils in order to supplement their contribution which is probably too small.

† Equivalent to our Post Graduates.—EDITOR.

brace this opportunity, in order that they may review all their history and portions of the other courses. They will be better prepared to enter the University or better equipped to decide how to use the rest of their lives. The best of them will have this thought, *amant meminisse periti.* Parents will prefer that their children should not be too young when they leave school and face the world and its dangers. And the Principal, the professors and the assistants will encourage them to stay, because it will mean increase of reputation and income for the institution. The private room given to each veteran, which will put him on his honor, will be a strong inducement. I have not forgotten the point of view of that age.

As for the day pupils who may be admitted at any age, and take any course to which they may be attracted, either by the reputation of a professor, or because of their own interest in a particular subject, they will pay for all the equipment they may need in their work and will give the school *one hundred* dollars a year.

It will be distributed as follows:

To the Principal	10	dollars
To the professor by whom he is instructed	50	
To each of the five other professors six dollars	30	
To the first assistant five dollars, to the second three	8	
To the porter and sweeper of the class room each one dollar	2	
Total	100	dollars

We can now estimate very easily the income of each officer and servant in a college of moderate success:

With the one condition that he shall pay one hundred dollars for *food, lodging, laundry, heat and light,* which at this price shall be furnished to all professors, employees and pupils of the State.

The Principal shall have a salary of	500	dollars
From eight State pupils, of whom seven* are taking the regular course, and one is reviewing	48	
From sixty-three boarders	1260	
From three veterans at their own expense	60	
From twelve day pupils	120	
Total	1988	dollars

* We have estimated on the basis of seven instead of fourteen State pupils because we want to avoid the risk of exaggeration and because we believe the smaller number to be preferable.

or ten thousand five hundred thirty-six francs French.

The professor of ancient languages will have a salary of	300	dollars
From eight State pupils	32	
From sixty-three boarders	945	
From three veterans	45	
From twelve day pupils	72	
Total	1394	dollars

or nearly seven thousand four hundred francs.

Each of the other five professors will have a salary of	300	dollars
From eight State pupils	24	
From sixty-three boarders	630	
From three veterans	30	
From twelve day pupils	72	
Total	1056	dollars

or about five thousand five hundred frances.

A professor of great reputation who would attract twelve day-pupils would have as salary	300	dollars
From the eight State pupils	24	
From sixty-three boarders	630	
From three veterans	30	
From twelve day pupils	600	
Total	1584	dollars

or eight thousand four hundred francs.

If the day-pupils were equally divided each professor of modern languages or of science would have..... 1144 dollars

more than six thousand francs.

And of ancient languages..... 1482 dollars

more than seven thousand eight hundred francs in money and from this income they have only to pay 530 francs for all the necessities of life—supplied by the college.

It is, of course, proper that, having two classes to instruct, the professor of two ancient languages and their literatures should be paid more than his colleagues who teach only one language and one science. He will not have longer hours than they do, he will not have double work, but he will have harder work. It will not be easy to have morning and evening classes of entirely different kinds, and never to spend an entire day on the development of one subject. His work is harder work and does not permit the same philosophic freedom. He must be paid accordingly.

We have tried to be fair.

The assistant professors should have:

The First

Salary	200	dollars
From five State pupils, including the veteran	20	
From sixty-three boarders	567	
From three veterans	27	
From twelve day pupils	60	
Total	874	dollars

The Second

Salary	200	dollars
From three State pupils	12	
From sixty-three boarders	441	
From three veterans	21	
From twelve day pupils	36	
Total	710	dollars

The servants will be sufficiently paid;

The cook will have 275 dollars;

The porter and one man, each 237;

And the last of all, 225.

They will be about the house and will often receive small gifts from masters, pupils and parents; gifts which cannot be prevented nor estimated.

But we need not consider them.

Our object has been, while keeping down the expense to the State, to procure for our professors such salaries that literary men and scholars

in America and even from Europe will be glad to work in the college, and to spend their lives there without regret.

We have seen that a scholar who gives his life to public instruction could count on an income of at least a thousand dollars and might hope for two thousand or more; for our estimates have been founded on what ought to be very moderate conditions.

As the organization of the establishment obliges our professors to have a very simple, though generous table, they will have much of their salaries left for other expenses and in fifteen or twenty years, should easily have saved a capital more than sufficient for comfortable retirement.

I should prefer them to be unmarried and with no idea of marrying until their fortune is assured and they can leave the college.

I would not, however, make that a law. The laws of nature should not be defied.

But if a professor, even were he the Principal, is married, or marries, his wife cannot live in the school building. It is undesirable both for the professors and the pupils that there should be any woman in the establishment.

We have almost reached the end of our plans concerning *colleges*. We have arranged the

course, the branches, the reviews, calculated the expenses, indicated the discipline. We have tried to find a way of securing good professors; and to develop the abilities of the pupils, to shape their intelligence, to give them a wholesome amount of real knowledge without discouraging them by unhappiness or fatigue; to cultivate at the same time their minds and hearts, their judgment and their morals.

But we have described the colleges as they will be when they are in full activity, and when all the classes are filled. It must be remembered that they will not be so in the beginning and that it would be awkward to engage professors before we could give them pupils—and pupils prepared in the primary schools in accordance with our plan of work.

Either the professors of the higher classes would be idle for several years, or they would be obliged to admit pupils who had not followed the earlier courses; and these higher classes would not be a part of our general plan of teaching. They would only be special courses, somewhat like the plan we suggested for the colleges in cities where pupils who have finished the course could return as day-pupils for any course they might choose.

The professors would become accustomed to

the interest of educating these special students. They would become rivals when they should be competitors. Each one would use every effort to make his class the popular one; very possibly by disparaging more or less openly the branches taught by their colleagues, or their methods of teaching. Animosity and hatred would enter the household. The fruit stung by the insect would die before it matured. We would perhaps fail to achieve the institution that we have planned—the hope of which is dear to us.

To weaken our masters by temptations to selfishness and vanity would not help them to give us good pupils.

It would be difficult to bring the school back to a democratic and brotherly spirit. Each professor, eager to keep his pupils, would resent their return to the established classes, which are so necessary if the education is to be well balanced.

We must be careful lest we harm our work in our haste to complete it. Let us go step by step; let our courses grow one from another in their natural order. Let us allow for the formation of our colleges the six years demanded by the six classes that will be taught there, with the preparation of the seventh, by adding a new

class each year for the pupils who have finished the preceding one.

It will be easier to find the professors whom we need in a period of six years than to discover them all at once, and if they arrive at different times they will easily accept the spirit of the school and the established customs. The rules adopted for the household will be obeyed without demur.

I would suggest that for the first two years, only the Principal, the professor of ancient languages and one servant be engaged.

I may be asked why put a Principal in a college that has but one professor.

It is in order that the Principal may be there afterward without displacing and irritating the professor.

If for two years we had no professor except the instructor of ancient languages and we allowed him to direct everything, he would be unwilling to recognize a higher authority when the college was complete and it would be imperative either to make him the Principal (which would be incompatible with the work required by his two classes) or to accept his resignation which he would offer rather than remain as a subordinate after having had supreme authority. The human heart is made that way.

It is important then at the very beginning to put at the head whoever is to continue there.

The Government or the Commissioners who are authorized to direct public education should select only the *Principal* for each college, and should appoint the professors whom he nominates; reserving only the right to reject any whom they may not approve, and to dismiss any who behave badly.

The Principal would command very little respect unless he had the right to nominate the professors and assistants and to engage the servants.

In this way method will be developed at the beginning and authority will be established without difficulty, and will always be upheld. A college, and above all one that receives boarders, is an artificial family; there must be a *father* and the *father* must be the Principal. The professors can only be *brothers* to each other and *uncles* to the students.

While the college is young and has few boarders, it may be established in an ordinary house during the construction of the buildings which it will later occupy. In this way the pupils will not need to wait till the school is finished.

The largest and most convenient house that

can be found near to the site of the new building should be chosen.

The Principal should supervise the construction. He will give the pupils *instruction in moral philosophy;* for there should be no time in education when the study of ethics is put aside; and when there is no special professor for that subject the Principal should arrange a class and teach it. By making it a special class he will impress on the students that it is the most important subject in human knowledge. In this course custom and prejudice must be considered and explained, and cleverness must always be subordinated to morality. The man who does not make a great success of his life should have the consolation of thinking: "I could not become as great a man as so-and-so, but it is my own fault if I am not a better one, and of more value before God and my neighbors."

During the first months of the school there will be few boarders and the incomes of the *Principal* and the *Professor of Ancient Languages* will be small; they should therefore be allowed, beside their own salaries, those of the instructors whose places they fill temporarily.

The Principal will receive his regular salary of five hundred dollars and that of the professor

of moral philosophy, three hundred dollars, a total of eight hundred dollars.

And the professor of ancient languages will have beside his own salary of three hundred dollars, that of an assistant professor, two hundred dollars; in all, five hundred dollars.

This is independent of what each of them will receive when the school is properly established.

When the professor of moral philosophy and the first assistant professor are appointed, if the number of boarders is not sufficient to assure the Principal and the Professor of Ancient Language an income larger than they received at the beginning, the Committee of Education should continue to allow them the difference and this allowance should be continued until it is made up by the fees of the pupils. In giving his life to public education in one of our new educational institutions, a scholar must feel that his fortunes will improve each year, at least until the buildings and the classes are complete. After that his success will depend upon competition and the respective reputations of the different colleges.

For the first two year there will be no staff except the Principal and the Professor of Ancient Languages, who will between them undertake the additional duties of the Professor of Moral Phil-

osophy and an assistant professor, and will receive their salaries.

One servant will be sufficient for the first year. The number of pupils will determine whether another will be necessary in the second year.

The expense of the first year will be *fifteen hundred dollars,* apart from the rental of the house. For the second year it may amount to *sixteen hundred and fifty dollars,* beside the rental.

We suggest that the Committee of Public Instruction be given from the beginning the full yearly sum considered necessary for the college, as if it were completed, and that the Committee be authorized to use for the construction of the buildings whatever money is left because of the vacancies in the staff.

If the rental of a house is *five hundred dollars* there will be in the first year *fifteen hundred dollars* and in the second *thirteen hundred and fifty dollars* above the expenses; or, for the two years, *two thousand eight hundred and fifty dollars,* and it is possible that with this amount buildings could in two years be constructed that would suffice for the three classes that will compose the school at the end of the second year.

During the second year the Principal must find a man whom he can propose to the Committee

of Instruction as suitable for the chair of *moral philosophy and the French language.*

The new professor, whose duties are less exacting than those of the Principal and the Professor of Ancient Languages, will during the third year, act as assistant professor and the salary for that position, added to whatever may be necessary in order that each of them shall benefit, shall be divided among the two professors and the Principal.

The need of three servants may be felt when three classes are established and there are perhaps thirty or thirty-six boarders; but even so the expense will not exceed *eighteen hundred dollars,* for there will be no more rent to pay, the school will have been moved to those buildings that are finished. *Seventeen hundred dollars* will therefore be left for construction.

At the end of the third year the Principal will nominate and the Committee will appoint a Professor of Logic (of the science of sensation and thought) and of the German language, and also an assistant professor. By this time, with four classes formed, the boarders should number forty or forty-eight and their fees should be sufficient to give each professor an adequate income, so that the State need not add to their regular salary. The expenses will not be over *twenty-one*

hundred dollars and there will be *fourteen hundred dollars* for the building fund.

At the end of the fourth year, the *Professor of Geometry and Physico-mathematics* should be appointed and the existence of five classes may make it necessary to engage a second assistant professor. The expense will increase to *two thousand six hundred dollars*. In this fifth year there will be only *nine hundred dollars* for the buildings.

The *Professor of Chemistry* and other branches of natural history will be installed for the sixth year and probably another servant will be necessary, for the house should contain from sixty to eighty people. The expense account will amount to *three thousand and fifty dollars*. Only *four hundred and fifty dollars* can be saved for the building fund, which will have had in all *seven thousand three hundred dollars*.

If this sum is not sufficient for the necessary construction, either a building fund must be given or the annual expense of the college must be more than *three thousand five hundred dollars*.

But we have demonstrated that by advancing slowly in accordance with a careful consideration of the necessary work and the good will that is so necessary for the establishment, we shall

have supplied the whole or the greater part of the building fund from money that has been saved by forming the classes only as they became necessary to our general plan.

TIME FOR OPENING THE COLLEGES

I have only a word more to say of the colleges.

Although we have arranged the courses to continue the studies of the primary schools in every department — ethics, physics, geometry, and grammar—and although the books that the primary schools need cannot be ready for four years, —those books that are to be the foundation of the national education and are to make the citizens who study from them the superiors of all peoples past and present,—I do not believe that we should wait all those years to found our colleges and to begin to use them.

It would of course be better if it were possible that the children should come to them with the excellent preliminary instruction that they will receive in our *schools*. However, those better educational facilities which we are arranging for children who are now babies must not prevent our doing as well as we can for those who are playing around us and who in ten years will be men, almost ready to take our places, educated or not.

The arrangement of our colleges requires six years for their complete organization; we must not delay in agreeing on a plan, making the rules, opening the first class. That should be done in the coming year.

Our children will enter it, of course, only fairly well prepared, as were their fathers. But since we have gone through the institutions of our time, which were not as good as those we hope to found; since in spite of that we do not consider ourselves the most useless of men, let us hope that the youths who are now beginning their education, will get more from it than we have done; especially as they will have colleges more wisely arranged than those in which we employed, or lost, a goodly number of our early years.

We shall be glad to be surpassed by our sons, as they will be by theirs. Let us invert the progress that grieved Horace when he said: *Aetas parentum, pejor avis, tulit nos. . . .*

As soon as possible the professional schools of the University must be organized, though they are less important than the colleges.

The colleges will accomplish less than the primary schools.

The primary schools will be the rich source

of intelligence, morals and happiness for the nation.

These three institutions are part of one system and will help each other.

Those men in the Government who establish the higher schools of the University, will receive the applause which distinguished scholars so well know how to offer.

The founders of the colleges will receive the gratitude of parents and pupils.

The approval of heaven, the admiration of posterity, the joy of a happy conscience are for the creators of the primary schools.

Let us aspire to all those honors, all those pleasures and let us earn them. Let us leave to our children nothing to do but to thank us.

From the next session of the Legislature let us ask that resolutions be passed for securing the books for the primary schools, the decisions and prizes necessary for this contest; the principles of organization and instruction in the schools; the formation of the colleges, which should be in effect this year; and that of the special schools which compose the University and should be ready not more than a year later.

But on this last subject we will try, as we did on the other two, to form a clear idea of what we want.

THIRD PART

ON THE UNIVERSITY, OR RATHER THE SPECIAL SCHOOLS FOR THE HIGHER SCIENCES

ON THE UNIVERSITY, OR RATHER THE SPECIAL SCHOOLS FOR THE HIGHER SCIENCES

WE HAVE until now used the word University to describe as a whole the schools founded by the Government in which the study of sciences, begun in our colleges, is carried to a higher development, and other branches of knowledge are taught for which there has been less preparation.

And we have thus used the term, because it was for the establishment of a University that we were asked to write this treatise.

But the noble and scholarly man who so graciously asked for it, did not mean by the word University only a place for instruction in the highest sciences. He positively excluded from his project any classes for such accomplishments as could be studied without the help of a public institution.

The name *University* comes from Europe and implies the claim of our great institutions of

learning, that they introduce their students to the universality of human knowledge.

These *Universities* of the old world were or are divided into four departments.

1st. The Department of Theology, which was never the universal theology, or morality founded on the knowledge of God, on the proofs of his wisdom and goodness, on the duties which he imposes on men by the physical constitution that he has given them and by their relations to each other and to other animals; but only the theology of the dominant religion of the country.

The Universities of Salamanca, of Paris, of Oxford, are very different in their Departments of theology.

2d. The Department of Law. There are taught in France the canon law or papal law, and the civil law of the Romans under their last emperor, but little or no French law.*

I do not know whether law is better taught in England, but from the amount of trickery that can be accomplished by the civil law of England, and which reaches even to the United States, I think it would be wiser to use all the powers of

* In the thirteen years since the above was written this branch of instruction has been much improved. (As for the word University, it is now applied to the union of all schools that have been formed in France.)

philosophy, morality and justice to simplify the law itself, rather than to waste the powers of youth in its study. Unfortunately the complications and obscurities of laws and their application often create what is called *a good business,* and men who have learned this *business* and live by it, and because of it are frequently elected to the Legislatures, become, almost in spite of themselves, decided enemies of reform.

3d. The Department of Medicine. That includes a great number of interesting sciences, which, when they are absorbed by minds formed for the study of nature and disposed to respect its laws, are a wonderful training for the intellect, and are profoundly useful to humanity by the knowledge they give of illness and the opportunities to relieve, console, encourage and help those who suffer. The knowledge of how to heal is still in the hands of God. English physicians, masters and models of the American doctors, while otherwise able scholars and very learned, seem to be ignorant of that important fact. They too often operate, and their patients die more frequently.

4th. And last, the Department of Arts, where mechanics are not taught, nor hydraulics, nor drawing, nor painting, nor sculpture, nor architecture, nor music:

But *Latin,* as thoroughly as a dead language can be taught;

Greek, rather poorly, except in the universities of Scotland and some of Germany;

Latin poetry, or rather, the rules of versification; poetry is not taught, *nascuntur poetae;*

Rhetoric, so aptly defined by Montaigne as *the art of making large shoes for little feet,* is, of all arts, the one most certain to spoil one's style.

They add to rhetoric, to distort the mind, *debating,* under the name of logic, with the stupid and barbarous principle that any proposition may be both attacked and defended: *quidquid dixeris argumentabor.*

However, all our great men have overcome the misfortune of having gone through these studies, as some vigorous constitutions survive the abuse of bleeding, of opium, of kermes, of emetics, and of calomel.

Above these two extinguishers of intelligence there is a third, an unintelligible theological gibberish called *metaphysics.*

And at the end of the course, in the last months of the last year, they talk a little of *geometry,* casually of *physics,* and of *astronomy,* but in such fashion that the students know much less of them than our pupils of the primary schools.

After having taken what are called *degrees* in these four Departments, one is supposed to possess universal knowledge; and there was a time when one held proudly to the proposition *de omne scibili.*

Our *University* will be different.

It will include our *primary schools,* our *colleges,* and our *special schools.* For all these institutions will be branches of our public education. And the special schools will be only the summit or the completion.

I would not therefore give the name *University* to the special schools, though it may have a useful side; namely, that of adopting accepted standards, and of convincing Europeans as well as Americans that youth can be as well taught in America as in Europe.

It should be provided by the law concerning education, that the *General Council* and the *Committees of Public Instruction;* the *special schools* for the most advanced studies; the *colleges,* of which the object is chiefly to develop literary and scientific men; and the *primary schools* which will give the most important knowledge to all citizens—shall together constitute the University of North America.

A young man who had gone through a primary

school, college and the special schools would be a *scholar of our University*.

This should be defined clearly and precisely, as must always be done in matters of legislation, and as nearly as possible in everything. Nothing is more unfortunate, particularly when it has to deal with matters of education where it is so necessary to be exact in the choice of expressions, than a meaningless word or an ill-chosen one.

Let us consider now the special schools that should be established at Washington City.

There should be, it seems to me, four schools:

One of medicine;

One of mines;

One of social science and legislation;

One of higher geometry and the sciences that it explains.

I do not see any reason for their being dependant on each other, nor of their having any connection except that they will be in the same building, where there will also be the public library, the museum, the botanical garden, the quarters of the General Council of Education, and the philosophic society.

This palace of science seems to me to be one of the monuments with which the eighteen States would wish to embellish their capital.

We have seen that the State's pupils, chosen to be sent to the special schools, have decided on their professions and have prepared themselves to study for them by a longer or shorter period of post-graduate work in the college.

Those who wish to study medicine will repeat the work in chemistry, physics, natural history, and ancient languages. That will require three years.

Those who wish to study mining must do their preparatory work in the class of geometry and in those of natural history and chemistry. Two years will be sufficient.

Geometry and algebra will occupy those who are interested in astronomy, navigation, ship-building, or higher mathematics; and it is possible that they may be prepared in one year, though two may be necessary.

Finally those who would be members of the bar, or study the science of government, should apply themselves to the classes in natural law, national law, history, political economy, and languages ancient and modern. They will need three years.

When they arrive at the special schools, they will be worthy of receiving lessons and capable of understanding them.

The four schools being directly administered by the Council of Education, they do not need a general *Principal;* but each of them should have its own, who will select his colleagues, and will explain to the students in what classes they are to begin, in what order and with what purpose they are to go to other classes; also which subjects they should review, and when.

Let us examine the necessary number of classes.

SCHOOL OF MEDICINE

It will have five classes:

The first of anatomy;

The second, of animal economy and pathology. The professor of this class will have the title, rank and authority of *Principal;*

The third, of surgery and child-birth;

The fourth, of materia medica and pharmaceutical chemistry;

The fifth, of botany.

Young men who do not intend to study medicine but wish to know more of natural sciences may join the classes of anatomy and botany. But no one shall be accepted as a Doctor of Medicine without having passed successful public examinations in all five classes.

The Professor of Botany will direct all work in the garden and will take his pupils for walks in the country.

The Professor of Anatomy will give several lessons on comparative anatomy, which will impress on the students the anatomy of man. Beside the work in his own amphitheatre, he will direct and supervise the experiments of each of his pupils out of the class-room; and as they improve he will have each of them in turn demonstrate in the amphitheatre, in his presence, for the instruction of their fellow-students.

The *Principal* and the Professor of Surgery under him will have charge of the hospitals and will take their pupils to them, warning them of the dangers of having patients near together in a hospital; and that care must be taken to make complications of diseases less frequent and less severe by filling the rooms with fresh air and by placing the beds far apart. When one builds in a locality where it is possible to have all the land that is necessary, a hospital begins with a very great advantage. It should be possible at Washington City and the sea board cities of America to require hospitals only for sailors without friends or acquaintances, and to care for others in their own homes.

The medical professors shall be authorized to

take one of their pupils when they visit patients who have sent for them; but never two pupils at once, and always the same one to the same patient. For a sick man does not object to seeing a consultant with his doctor, but a new face might distress and harm him. For this same reason, if the physician has found his pupil useless during the first visit, he should not take him again.

All of our pupils will have had at *college* at least two good courses of theoretical and practical chemistry. With the help of a class in pharmaceutical chemistry it will be easy for them to apply those principles to materia medica and to pharmaceutics.

These students of medicine will be educated men who, as post-graduates, reviewed in college their courses in Greek, Latin, chemistry and natural history. They will not be held back in the medical school by constant reviews, which are necessary at college for inattentive pupils, whose memories are quick but not retentive; but we have already advised that of their own accord, after consulting the Principal and the professors, they review any courses in which they are most interested. Anatomy, pathology, surgery—each demands more than one year of study for those who wish to do more than talk about it; and

our students must be able to use their knowledge and help suffering humanity. They will have time enough. A man who wishes to be a physician should give his whole youth to preparation; for until he is thirty years old he will not inspire much confidence. In the meantime he should learn to deserve it; a patient's faith in his physician is one of the most powerful remedies.

We have placed the class in botany at the end of our medical course, as a recreation and relief; we feared that if it were studied earlier it would be a dangerous distraction and amusement.

The study of botany is very healthful and very entertaining; while that of anatomy, although most interesting, is depressing and unhealthful—it means overcoming much that is abhorrent. Surgery, which demands that one forget the sympathy inspired by the cries of pain and the repugnance of dipping one's hand in blood, requires a courage not easily attained.* The lovers of Flora find it hard to leave her laughing valleys and delicious woodlands to return to the altars of pain and the temples of death.

Moreover, it has been observed that few botanists wish to become physicians, unless they

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* Pierre Samuel du Pont was a physician and wrote from personal experience.—EDITOR.

were so before. But society does not need a large number of professional botanists. They are like great mathematicians: two or three of the highest rank, five or six of the second, are sufficient. It is not so with physicians, if they have philosophic minds, if they do not pretend to cure everything, if they do not insist on giving drugs, if they know natural history, if, like Hippocrates, they can use and purify air and water, they can accomplish much for the state and are the best instructors of practical philosophy, of enlightened benevolence. We must not let them sacrifice the utility of the fruit to the charm and beauty of the blossoms. We must not train our youth for his own amusement—*non sibi, sed patriae.*

SCHOOL OF MINES

I have no desire that the United States should give much thought to gold mines, which are very rare and happily are unknown in that country. But coal mines, indicated, not far from the coast, by immense beds of micaceous schist, and by a multitude of valleys which were formerly bays situated in the beds of ancient lakes and now dried up; copper mines, lead mines, above all iron mines, seem to be numerous there and of

excellent quality. They require, therefore, serious attention.

And in a country where the population is not great compared to its immense territory, where the price of labor will probably be high for two or three centuries, these mines can only be worked when science and intelligence overcome the difficulties of labor and expense. The temptation to work them exists and will increase. It must be so managed that it will not be ruinous.

Under these circumstances a school of mines seems to me to be necessary.

This school should have three classes:

One of mineralogy, of which the professor shall be the *Principal* of the school, and shall nominate the other two to the Council of Education.

The other two professors will teach:

The first, docimastic* chemistry;

The other, subterranean geometry and the machinery that may be necessary for mining.

These three studies will be grasped easily by pupils who in our colleges have learned some idea of natural history, and have had a good training in chemistry and thorough preparation in elementary geometry and mechanics.

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* The science of assaying minerals.—EDITOR.

However, we shall require of them a year for each course in the school of mines.

We believe that they will then be ready to understand a mine and to direct its exploitation with economy and intelligence.

SCHOOL OF SOCIAL SCIENCE

The school of *social science* shall be limited to two classes:

The first will be under the *Principal* of this school, who will select his colleague. The Principal will teach the general theory of government; that of internal administration and political relations; the law of nations, statistics, colonization. This will be the *school of statesmen.*

The first principles of it will have been studied in childhood in the books of the primary schools and continued in college in the class of ethics, as well as in the courses on history and political economy.

But in the special school the students will not be limited to general maxims, nor to outlines of history; they will examine in detail the strength and the interests of different nations, their sagacity, their errors, and the consequences that follow. By using political arithmetic, explained with thoughtful criticism, they will learn not to

accept figures on the population, culture and commerce of a country from directories, almanacs, worthless books on geography, the haphazard or prejudiced accounts of travellers; nor even to depend on statements that seem more authentic and are quite as misleading, such as official financial reports, which never allow for waste and suppress secret transactions; nor the statements of the records of the custom-house of which the clerks cannot and will not report fraud, collusion, contraband, and who have no knowledge whatever of the shipments of silver, gold, precious stones, jewels, and compact merchandise like lace.

The pupils will be taught to connect every fact with others that relate to the same subject; to balance them, to judge one by the other; to determine the truth between two exaggerations, one of excess and one of diminution; and to put facts together with sagacity so that gradually the mind will arrive at something that is very near the truth. It is surprising to find how very accurately one can obtain definite information by this method on matters that were absolutely hidden under a chaos of statements and contradictions.

Political truths demonstrated by facts are no more convincing to the trained mind than they

were without demonstration; but they are much more imposing to the multitude. It is important that the members of a government shall add the weight of erudition which impresses the public to that of reason which only affects philosophers; and that by the force, the depth, the fluency of their discussions, they can, in legislative bodies or executive councils, repulse or suppress thoughtless assertions that might lead to dangerous situations. It is not enough in political combats to be courageous and to be right; it is necessary to be well-armed and able to fence.

Another branch of this great science, a branch that is most important to a country like the United States, which has behind it three million square leagues of wild and uncultivated land, is that which concerns colonization; the art of persuading, explaining, conquering by kindness; to establish by means of honesty and by carefully planned labor increasing happiness, uprightness and success for the new nation; the art of enriching others and one's self by advances made with apparent but well-considered lavishness.

I do not say that this last branch of social science is as yet fully grasped and perfected; but the rudiments are known and the *Western Territory* gives unlimited opportunity to test its

principles by experience. Organized groups are beginning to appear there, like grass in a forest. It would not be difficult to learn to sow and cultivate them like plants in a garden.

I think that the work of this class should continue for two years; and as the pupils can do much of it by themselves—reading, extracting, criticising the works which the Principal-Professor suggests—I think they need a lesson only once in two days. They are to exercise their discrimination more than their memory.

This Principal-Professor will hold the class on Monday, Wednesday and Friday for the pupils of the current year, and on Tuesday, Thursday and Saturday for those who are in their second year. The intermediate days will be for the work of the pupils themselves; in this science above all it is necessary not to *think* but to *know*, and to develop by one's own intellectual effort and talents and by the finest perceptions of one's own mind.

The other class of *social science* will be devoted to the *civil and criminal law* of the country.

But I most urgently advise that law shall not be considered permanent law until every effort has been made to find the source of the reasons and methods for prolonging litigation, which multiplies feuds, which chills friendliness, which

checks reciprocal advances of great value in a country still very bare of population, and which forces on the nation a burden that is detrimental even to its treasury. I implore that before everything else the source of these evils shall be stopped or at least diminished by definite laws, by simple rules of procedure which can always hasten the end of a law suit.

If all trials were decided by chance—by throws of dice, justice would be done half the time.

But in a nation that is generous, thoughtful and honest and where judges are elected, judging is never done by chance. Therefore any plan that will bring about greater promptness in the process of law will be a good one.

When the complication of formalities, the facility of quibbling, and the piling up of *illegalities,* often by collusion, which involve a review of the whole affair, have affected three hundred law-suits, it may be that one of them has been somewhat better judged; but the delays occasioned to the other two hundred and ninety-nine have done more harm than can be offset by the perfect decision in the three hundredth.

But it is not true that complication of formalities, facility in quibbling and discovering illegalities, can ever lead to a wiser decision.

Any honest and intelligent man can judge a

short trial; when a suit becomes complicated, it needs eagles and angels.

Why is America so obstinate in imitating everything English?—and particularly the things that England herself rightly considers mistakes in her government, and which she would have reformed long ago if they had not been bound up with the interests of a numerous and powerful corporation?

Why does not this daughter of thirty years pride herself on improving on her mother?

My dear Americans, revise your *civil law* and do not let it be taught with the *authority of the State* until you have made the laws and the processes as good as you know how.

As for your law concerning impeachments for crime, you can scarcely alter that.

SCHOOL OF TRANSCENDENTAL GEOMETRY

This school will be devoted to the highest geometry and to those ordinary sciences that depend on it.

There will be five classes:

One of *transcendent geometry;** the professor

* Everything in higher mathematics beyond Euclidian geometry.—EDITOR.

of this class will have the duties and rights of Principal of this school.

One of *astronomy;*

One of *hydrography* and *navigation;*

One of the *construction and rigging* of ships;

One of *engineering,* both civil and military, and for artillery.

The names of these classes is sufficient indication of the knowledge that the third will have gained from the second, and that the three lower ones will gain from the first.

As it will be the professor of the first class who will find his colleagues, and nominate them for the approval of the General Council of Education, he will require their cooperation. He can give the course such an administration that its pupils will have a valuable training and will not deteriorate to the methods of the ordinary worker.

We have now in France the most wonderful construction for the hulls of battle-ships and we owe it to one of our greatest geometricians, *Borda,* who was chief of staff to d'Estaing, in the war for the independence of the United States.

It is said that the best battle-ship in Europe

is the *Conception,* which *Gauthier* built for Spain on Borda's principles.

And the two best frigates are the *Pomone* and the *Méduse,* of which Borda himself directed the construction at Brest; they have both, unfortunately, been taken by the English. He built us other excellent vessels.

It is a great misfortune that he died without having applied to the rigging those calculations and improvements which he so successfully applied to the ship itself. But one of his successors will do it.

As to *engineering* for civil and military construction, no nation is in such need of canals as the United States, and most of their ports have no means of exterior defense.

THE COST OF FOUR SPECIAL SCHOOLS

I shall not include in this expense the price of the buildings, for I consider them a public monument for the embellishment of the capital, and I suppose they will be built by the Government for the special schools and all other establishments relating to science.

The public library should not belong to the schools, but it should be at their service and chosen principally on the advice of the professors.

We need, therefore, in estimating the expense account, only consider the salaries of the professors and some other slight costs.

There will be fifteen professors, of whom four will be Principals.

I do not think the Principals should be offered less than *one thousand dollars* salary, or the other professors less than *six hundred* dollars.

Their salaries should place them in a rank above the professors and even the Principals of the colleges; for the public, which judges very superficially, always believes that a man is paid in proportion to his value.

So the four Principals will receive.....	4,000 dollars
The other eleven professors.....	6,600
A porter to clean the rooms.....	200
Other expenses	300
Total	11,100 dollars.

At this price alone we would not have Principals and professors worthy of the positions.

We will give them here, as in the colleges, contingent fees.

And in order to be able to give the professors and Principals whom we wish to engage for our schools, an idea of the income they may expect, we must make an approximate estimate as we

did for the Principals and professors of the colleges.

These calculations are suggestive and cannot be absolutely exact.

The students in the special schools are, like those in the colleges, of two kinds—the ones chosen for their abilities, to be educated at the cost of their States; the others, at the expense of their parents or themselves.

We have supposed that the State of Virginia will send each year ten students at the expense of the state to the special schools; that would be one from each college.

If the other states send students in the same proportion we shall have, allowing for the varying populations of the states, *seventy-five* pupils each year whose expenses at the schools of the Republic will be defrayed by their own States. So that in ten or twelve years and thereafter, there will be about *three hundred,* the enrollment depending upon whether they have selected courses requiring five years, or four, or three.

The students supported by their parents or themselves may amount to twice or three times as many; for there will be two or three times as many young men anxious to enter lucrative professions which require the higher education, as there are State pupils who deserve that edu-

cation at the public expense; and as students of any age will be received at these schools, many grown men will follow the courses for pure love of study.

The students will receive from the State that sends them a pension of *two hundred dollars*, of which *one hundred and fifty* will be given to them for their food and other personal expenses, *fifty* will be given to the professors—*forty* to the one in whose class the student is working and *ten* to the *Principal* of the school.

Those who are in the Principal's class will give him the whole of the contribution.

Each student will choose the profession that he wishes to adopt and, in consequence, the school that he wishes to enter, but while he is in that school he will follow the advice of the Principal as to the order in which he will enter the prescribed classes.

The students whose expenses are paid by themselves or their families, will pay *one hundred dollars* a year, of which eighty will be for the professor whose course they are following and twenty for the Principal of the school.

When they are in the Principal's class, the hundred dollars will not be divided.

We will not repeat the statements we have already made in explaining the salaries for the

colleges; it is enough to say that this arrangement will assure to the professors and above all to the Principals of our special schools much larger incomes than the most distinguished scholars can hope to earn in other countries.

This excellent position will be reached by degrees, but even at the beginning the terms will be generous.

At first there will be no State-aided students and it would be unwise to expect more than a hundred and forty or a hundred and fifty each year for the first years, divided according to their choice among the different schools.

For the first year it will be necessary to open only the four principal classes and two dependent classes—they will be the classes of *anatomy*, ANIMAL ECONOMY and PATHOLOGY, MINERALOGY; *docimastic chemistry*, SOCIAL SCIENCE and TRANSCENDENT GEOMETRY. The other classes will not be opened till the second, third, or fourth year as they may be needed.

This precaution—which may be demanded by the requirements of instruction, though it may not be for the interests of the treasury of the institution—must be observed: no professor shall begin with less than *fourteen hundred dollars* and no Principal less than *two thousand*, and their incomes shall increase each year for ten

or twelve years. At the end of that time, the least important chair in our special schools will be worth *four thousand dollars or twenty-one thousand francs* to the professor; some will offer half as much more and the four Principals from *forty to fifty thousand francs* each.

Such incomes will make it possible to choose from the foremost scholars of all countries in selecting professors and Principals for our special schools. The ambition of every learned man in the world will be that he may one day attain to one of the chairs. Washington City will become the Bokhara, the Benares, the Byblas, the Cariath-Sepher, the city of knowledge. Men of the highest reputation will be assembled there as professors; perhaps Europeans will not be considered properly educated unless they have studied in its schools.

Such is the advantage that Athens once enjoyed; today it belongs to Edinburgh and Gottingen. To obtain it we would only need to secure the most illustrious scholars of Gottingen, Edinburgh, and other scholastic cities, promising them a brilliant future that can be attained only by the perfection of their knowledge and that can be secured only by sustained preeminence.

Our professors will form the nucleus of an

admirable Philosophic Society. Engineering will do wonderful things in a country where it will be so tremendously rewarded. It will make therefore its most powerful efforts and will urge forward all other sciences. We shall have increased knowledge by giving it a worthy home. We shall have done well for America and for the world.

THE FREE SCHOOLS

Because we shall have established good primary schools with excellently written text-books, colleges carefully planned, and very thorough special schools, it does not follow that the American Republic has assumed the power or the right to claim for the State, the Ruler, its delegates or anyone else in the world, the exclusive privilege of instruction. Above all let us respect the rights promised in the Constitution.

To provide the means of education is a praiseworthy task which should be forbidden to no one.

Teaching is a very honest and honorable way of earning one's livelihood. It should be free like all work, and competition is as improving to educators as to men of any profession.

And so, if adjoining the primary school authorized by the State and supported by its citi-

zens, someone establishes a school in which he teaches by another method, better or worse, let him; but make one condition—that the books ordained by the State for the primary schools shall be used in his classes; that he shall not use other books which may be harmful; and that at the time of examination his pupils shall present themselves to be examined according to the national standards.

The same liberty should be granted parents who wish to teach their children themselves. They will pay the master of the primary school the small contribution required by law; and they will send their children to the examination, so that it may be proved that they have not only read but studied the prescribed books. For the rest—as they please! If the children accomplish less than others, they will resent their solitary instruction. But it is probable that a father who teaches his son will do it carefully.

If a man, or an organization, wishes to open a boarding-school, a secondary school, a college, a special school of greater or less scholarship, they should be quite free to do so; provided that before it opens they have submitted to the Committee of Education and the municipal magistrate the books or papers from which they expect to teach, and that these productions contain

nothing harmful to morals or likely to inspire atheism; of this the Committee of Education shall judge. And, provided also, that such a school continues obedient to the supervision of the Committee of Education and to the Inspectors authorized by the Committees.

Of course, no one should be persecuted or insulted for his religious or irreligious opinions, any more than for the occupations or amusements that he arranges for himself in his own house, without harm to other citizens. But, since a school of atheism would be a school of false reasoning and would weaken one of the foundations of morality, which is the agreement of actions with universal reason and with supreme beneficence, I do not think that the government should permit that the doctrine which supposes that there is no HIGHER OR GREAT BENEFACTOR should be taught to young people *in class*. And I say the same thing of licentious books; they should not be printed nor offered for sale anywhere.

The liberty of the press gives to atheists who fancy themselves philosophers sufficient opportunity of expressing their opinions if they think it proper; and as their metaphysics are obscure, and their reasoning tiresome, there is little harm done. The deistic philosophers whose logic is

much more exact, and who are very apt to be painters or poets, are a sufficient barrier between atheists and men and women old enough to reason.

But, in the case of children, an instructor whom no one may contradict, would have a terrible opportunity to warp their minds and pervert their hearts. Their education should no more be entrusted to an atheist than to a libertine.

With these two sources of corruption eliminated it would be an excellent thing if a large number of free schools, having no support except the genius and ability of the masters, should enter into competition with our national schools, criticise our methods, show us by their example and their success how we can improve.

If in the free schools there should be a very brilliant master, with unusual ability for teaching, we may trust to the Principals of our colleges to see that this desirable instructor be called to a chair, and we may also trust the interest of the professors to introduce to their classes one who has been very successful in a free school. It was not without thought that we arranged that the large part of their income would depend on contingent fees, proportioned to the number of pupils in the school, and it will be excellent

if their vigilance, their zeal, their activity, their intelligence, already stimulated by rivalry between the colleges, should be more so by rivalry with free schools.

Let them go on. Everything that does no harm helps.

THE PARTICULAR COMMITTEES AND GENERAL COUNCIL OF PUBLIC EDUCATION

I have said much about the *Committees of Education* and indicated many of the duties with which I think they should be entrusted; but I must explain more clearly how I wish these Committees to be formed, and what extent of authority they should be given.

I think that the legislature of each of these American Republics should select, in whatever way it thinks best, a committee of six or seven members to administer public education within its own State.

The members of the Committee of Education need not be Representatives or Senators, but if any such are particularly qualified for the position, they should not be excluded. The Legislature should choose the commissioners of education as it pleases, from its own membership or from outside. They should be chosen for

seven years, after that period one should retire each year, but should always be eligible for re-appointment.

In each State the Committee of Education appointed by the Legislature should supervise all the national instruction; appoint the Principals of colleges; give its approval to professors and assistant professors; dismiss them, as well as the Principals themselves; keep informed of all that is being accomplished; preside, by one of its members or by an authorized Commissioner, with the municipality and local public officers, at the distribution of prizes; present to the Legislature every year an account of the work of colleges and schools; publish the names of pupils to whom prizes are awarded; suggest, in the form of a petition, such laws or appropriations as may be necessary for education. The Committee should also inspect the free schools, which may not open without its consent, after submitting their plans, their books and papers; and it may close them if their principles become dangerous or their methods improper. Finally, the Committee should select one member to join in forming the General Council of Education of the United States; he may be a member of the Committee or not; may even be a member of Congress, or not.

This General Council, composed of as many members as there are States, should administer the special schools; appoint their four Principals; approve the other professors; remove them; direct the National Library and the Museum; keep in correspondence with the Committees of Education of the different states, in order that every year it may make a report to Congress on the situation and progress of education in the whole of the great American Republic; and should suggest to Congress, always in the form of a petition, whatever it may believe helpful for the advancement of knowledge. The whole educational system should be directly or indirectly in touch with the legislative body and the administrative power. The Government should be everywhere to protect everyone.

The General Council of Education should be presided over by one of its members elected for three years by the votes of a majority of his colleagues, confirmed by the Senate and always reeligible.*

* It was a great pleasure to the citizen who thought out these plans in 1800, when in France the Conseil de l'Université was instituted.

GENERAL RECAPITULATION

That which the nation should most carefully develop is the nation itself.

Upright standards and honest thoughts, learned in early childhood and expanded with age, should save its citizens both from the temptation of treating others unjustly and from the weakness of submitting to oppression.

The school books that of necessity begin all education, those from which children learn to write and read, should therefore contain all the principles of morals, the ethics of law, the fundamental ideas of duty, the maxims of wisdom, the proverbs of common-sense. No such book now exists.

They should also contain some elements of physics and natural history, that children may learn to observe and to think; that the world may not be an unknown country; that they may realize the benevolence of the Creator, the necessity of living honestly in the presence and the power of the Supreme Intelligence, which speaks to us by the reason it has bestowed on us and which in all its works, shows its great goodness.

In considering the inviolable laws that have been bestowed on the universe, children must learn those explained by geometry and must un-

derstand them sufficiently for simplifying the daily labor that every man may have to do, or to direct.

And all the fundamental laws that are so important for a useful life should be explained briefly, with such natural skill, such charm of form, that the essential truths will enter a child's mind and be impressed on his memory by interest and pleasure.

In order to secure these necessary schoolbooks within three or four years it might be wise to have two contests, the second one for perfecting the material that was offered at the first.

Such books will be expensive; however, they will be worth all they cost. But as every child must buy one for his use in school, the money advanced for the production of these books will not be a loss to the State; it will be the beginning of a permanent and important fund for paying part of the other costs of public education.

Scholastic work will be made easy for the children. By writing they will learn to read; from the words and phrases that it will amuse them to write, they will learn grammar, ethics, a little natural history and physics; from physics, geometry; from geometry, algebra; from algebra, arithmetic. They will learn to connect those

observations which interest all children. They will exercise their own logic and their minds will become accurate. They will understand objects before they concern themselves with signs and words—which will be given them not as arbitrary forms, but as welcome assistance for placing ideas and aiding the memory.

They will attempt experiments under the direction of their masters, as they would do themselves in order to arrive at facts. That is the useful amusement which nature designed for them and to which she constantly urges them.

A pleasure that is very welcome and ennobling will have been prearranged for them. In the primary school they will learn to judge each other fairly to show their appreciation to work and to excel, to try to deserve approval.

Their general intelligence will be developed; their judgment, their imagination, their character, their reasoning powers, their honesty will be formed.

Let them be the nation and the nation can never be equalled except by imitation.

The course in the primary schools will last for three years from seven to ten; and if the teacher is helped—greatly to their own advantage, by those pupils who are most esteemed by

their fellow students—one Master can suffice for all three classes.

The same love of justice and of rivalry without envy that has strengthened the children in the primary schools will not be lost when those who have been chosen by their classmates are sent to college at the cost of the State, and their classmates are sent by their parents for the same education. They will have frequent occasion to exercise those virtues.

By starting the colleges with only such classes as seem necessary at first and helpful for the administration of the establishment, there will be an economy that without great effort will pay for all or the greater part of the necessary buildings.

In these colleges, the pupils will study seven courses under six professors. They will be expected to learn, between the ages of ten years and seventeen, four languages with their literature; and what is far more useful, fourteen true sciences of which the great part are not yet taught in the colleges of Europe.

As it is impossible at that age, and in that space of time, to give more than the most important and essential facts in many necessary branches, they will be so combined, so connected with each other, that the pupils cannot forget any

part of what they have learned; the correlation between their different acquirements will be familiar to them; the *philosophy of knowledge* will remain with them; they will use it with profit all their lives and will be accepted everywhere as educated men, able to learn more every day, and to recognize and appreciate those who are even better informed than themselves.

Among these trained men, eminent ability and social value will indicate those whom the Government will continue to support. The honors awarded to successful students will be the foundations of altars of friendship in the college as in the primary school.

Those who are preparing for the highest sciences and the most scholarly professions, will receive at college during their post-graduate course, more detailed instruction than is necessary for those who want only an ordinary literary and scientific education.

The higher schools will be practical as well as scholarly.

Transcendent geometry will be taught for astronomical examination, for the construction of ships and for navigation, for the foundation of the defense of the country.

Botany, anatomy, pharmaceutical chemistry

body; and for the special schools a General Council, to which the Committees of each State will each year send one elected member.

This Council and these Committees will be the agent of the Government for the administration of everything concerned with education; and in matters that concern the legislative bodies or Congress, the Council and Committees will be the proper petitioners for laws and appropriations that may contribute to the progress of their work.

May these ideas, explained more rapidly and less carefully than I could wish, satisfy in part the intentions of the excellent citizen who has asked me to write them! May they pay a part of the debt of friendship that I owe him, and for the hospitality that his country has offered me!

At Good-Stay, near New York,
June 15, 1800.