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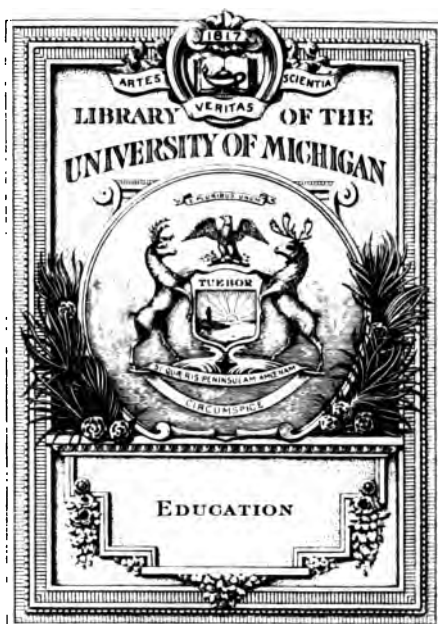
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CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.



No. 3-1881.

PROCEEDINGS OF THE DEPARTMENT OF SUPERINTENDENCE
OF THE NATIONAL EDUCATIONAL ASSOCIATION AT ITS
MEETING AT NEW YORK, FEBRUARY 8-10, 1881.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1881.

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L E T T E R .

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, June 8, 1881.

SIR: The meeting of the Department of Superintendence of the National Educational Association in New York City last February was characterized, like preceding meetings, by the ability of most of the papers and discussions then presented.

The subjects treated relate to matters of current importance, and, if published, would satisfy the many demands upon this Office for like information.

I therefore recommend the publication of these papers as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

S. J. KIRKWOOD,
Secretary.
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NATIONAL EDUCATIONAL ASSOCIATION.

DEPARTMENT OF SUPERINTENDENCE.

MEMBERS IN ATTENDANCE.

REPRESENTING STATES.

Hon. B. G. Northrop, secretary of the State board of education of Connecticut, Hartford.

Hon. James P. Slade, State superintendent of public instruction of Illinois, Springfield.

Hon. J. H. Smart, State superintendent of public instruction of Indiana, Indianapolis.

Hon. C. W. Von Coelln, State superintendent of public instruction of Iowa, Des Moines.

Hon. H. C. Speer, State superintendent of public instruction of Kansas, Topeka.

Hon. M. A. Newell, State superintendent of public instruction of Maryland, Baltimore.

Hon. E. A. Hubbard, agent of the State board of education of Massachusetts, Springfield.

Hon. J. W. Patterson, State superintendent of public instruction of New Hampshire, Concord.

Hon. Ellis A. Apgar, State superintendent of public instruction of New Jersey, Trenton.

Hon. Neil Gilmour, State superintendent of public instruction of New York, Albany.

Hon. Daniel F. DeWolf, State commissioner of common schools of Ohio, Columbus.

Hon. J. P. Wickersham, State superintendent of public instruction of Pennsylvania, Harrisburg.

Hon. J. Ormond Wilson, superintendent of schools for the District of Columbia, Washington.

REPRESENTING CITIES.

Hon. Aaron Gove, superintendent of city schools, Denver, Colo.

Hon. H. M. Harrington, superintendent of city schools, Bridgeport, Conn.

Hon. Ariel Parish, superintendent of city schools, New Haven, Conn.

Hon. N. C. Dougherty, superintendent of city schools, Peoria, Ill.

- Hon. A. P. Stone, superintendent of city schools, Springfield, Mass.
 Hon. W. W. Waterman, superintendent of city schools, Taunton, Mass.
 Hon. Albert P. Marble, superintendent of city schools, Worcester, Mass.
 Hon. Wm. N. Barringer, superintendent of city schools, Newark, N. J.
 Hon. Henry B. Pierce, superintendent of city schools, New Brunswick, N. J.
 Hon. E. V. DeGraff, superintendent of city schools, Paterson, N. J.
 Hon. Chas. W. Cole, superintendent of city schools, Albany, N. Y.
 Hon. B. B. Snow, superintendent of city schools, Auburn, N. Y.
 Hon. L. C. Foster, superintendent of city schools, Ithaca, N. Y.
 Hon. H. R. Sanford, superintendent of city schools, Middletown, N. Y.
 Hon. U. W. Cutts, superintendent of city schools, Orange, N. Y.
 Hon. L. S. Packard, superintendent of city schools, Saratoga Springs, N. Y.
 Hon. Andrew McMillan, superintendent of city schools, Utica, N. Y.
 Hon. J. A. Nichols, superintendent of city schools, Yonkers, N. Y.
 Hon. Henry S. Jones, superintendent of city schools, Erie, Pa.
 Hon. L. O. Foose, superintendent of city schools, Harrisburg, Pa.

MISCELLANEOUS.

- Hon. Jul. Katzenberg, school commissioner, New York City.
 Hon. W. O. Garrison, superintendent of schools, Cumberland County, N. J.
 Hon. Henry E. Pellew, school commissioner, New York City.
 Mrs. E. W. Walworth, school commissioner, Saratoga Springs, N. Y.
 Hon. W. L. Hoyt, school commissioner, Charleston, N. Y.
 Hon. C. Henry King, school commissioner of Richmond County, Stapleton, N. Y.
 J. H. Hoose, PH. D., Cortland, N. Y.
 J. M. Hawkes, New York City.
 H. B. Smith, New York City.
 I. W. Smith, superintendent of schools, Children's Aid Society, New York City.
 Amos M. Kellogg, A. M., editor of the New York School Journal, New York City.
 Edwin Leigh, M. D., Brooklyn, N. Y.
 Hattie N. Morris, Brooklyn, N. Y.
 Joseph H. Palmer, Yonkers, N. Y.
 John G. Murphy, Fishkill-on-the-Hudson, N. Y.
 W. A. Campbell, High School, Hoboken, N. J.
 David E. Rue, Hoboken, N. J.

FIRST SESSION — TUESDAY EVENING.

NEW YORK, *February 8, 1881.*

The first session of the department was held in the hall of the Cooper Union this evening.

Mr. N. A. CALKINS, chairman of the committee of arrangements, in calling the meeting to order, said:

LADIES AND GENTLEMEN: The Department of Superintendence of the National Educational Association has honored the city of New York by meeting here.

I now take pleasure in introducing to you the president of the board of education in New York, Hon. Stephen A. Walker, who will give the address of welcome.

Mr. WALKER spoke as follows:

Mr. PRESIDENT AND GENTLEMEN OF THE CONVENTION, LADIES AND GENTLEMEN: I take great pleasure in performing the office assigned me upon your programme and in welcoming you to the city of New York. I hope that this duty, having come to me as an official, will not seem thereby perfunctory or in any degree the less personal and cordial.

New York has been said to be a German city; it has been said to be an Irish city. Neither is true. It is a cosmopolitan city, and so far as devotion to the common schools is concerned it is, has been, and always will be, with even justice and a large liberality towards all, an American city, and to those who come here representing that idea and bearing these credentials our homes and our institutions are hospitably open. I welcome you to Cooper Union.

An Englishman who was lately here wrote to a paper in his own country that he thought this place should be called "a cellar of oratory." It is true we reach it without an elevator, but many good things of this life are kept in cellars, and the wine of free speech has never had a better storehouse than this. This place, gentlemen, is already historic. Could these walls have been covered with phonographic plates these past five and twenty years, we might take them down and there read the record of everything in politics, everything in social science, everything in finance, which has agitated the people or guided the forces and affairs of the nation. Democrats from this platform have argued for a high tariff and Republicans advocated free trade. Millionaires have represented the beneficent advantages of an unlimited currency, and men without a shilling in their pockets have favored contraction. This has been the focal point of every presidential and gubernatorial campaign since its doors were opened, and, when the issues have been at white heat and orators have found, by long practice upon the rural districts, what stories took the best, what arguments struck the closest, they have here made their final efforts. Here, in the gloomy or the cheerful days

of the war, stood Dickinson and Sumner to confirm and inspirit the hearts of the people. And here, just twenty-one years ago this present month, fresh from the heat of partisan debate in Illinois, stood the rugged form, here were heard the winning, wise, and weighty words of Abraham Lincoln.

But you are not only welcome to this historic hall; you may find a worthy reception to the topmost story of this edifice. From corner stone to flag staff there is not a square foot of space undedicated to the improvement and education of the people.

I congratulate you, Mr. President, on the purpose that brings you together and the happy issues that may be expected from your assembling. You are here to welcome each other, to hear each other, perhaps what is still more delightful, to hear yourselves. The good that may arise from the presentation and discussion of views may be difficult to calculate. You as superintendents are, I suppose, probably with very few exceptions, graduates from the corps of working teachers. If so, you are familiar and long have been with the complaint so frequently in the mouths of teachers, that the public fails to recognize their vocation as a profession, and only grudgingly, if at all, accords it the dignity in speech and nomenclature of which it is worthy. I state the fact of the complaint without argument, but it occurs to me as apropos to this occasion to say that there is an element wanting in the strictly professional character of the teacher's vocation which it may be, in the course of years, within the power of gatherings like this to supply.

Strictly speaking there can be no profession in the absence of a digested and systematic professional literature, and just that the teacher's art is not furnished with; of course I speak not of text books — of the making of these there is truly no end — I mean philosophical treatises on the fundamentals of pedagogy, the philosophy of the mind of youth in distinction to that of the mind of maturity.

How is it with the law? I can select two volumes from my library and hand them to a young man of parts trained to study and say, "Young man, master those two books. You may separate yourself from all human intercourse; you may exclude all other subjects for reading or study. If in two years or five years you can come to me having thoroughly mastered from these books the principles you find asserted and elucidated in them, you are a lawyer." Much will come from experience. The application of principles is the test of success, but grounded in these principles he is equipped for work, and after forty years of work the successful pleader or advocate can point to his two or his twenty thousand volumes which have formed his modes of thought and have been the source of his strength and power, and say, the whole is a perfect and rounded philosophical system, the applications of the principles of natural justice to the infinite vicissitudes of human experience. I will not enlarge on so fascinating a theme; it is so in the other learned professions. Paul and the Apostles, St. Augus-

tine and the fathers, speak from every pulpit; Hippocrates and Galen minister at every bedside. A systematized philosophical professional literature is the source of all strength and power.

I beg leave to suggest that your assembly may, while not intending it even, contribute to so wholesome a result. Literature is an evolution; the fittest survives. Some words here spoken may strike new veins of thought, and your humblest speaker may turn out to be the educational codifier of the future.

Again, Mr. President and gentlemen, I welcome you in the name of the board of education, in the name of the city of New York, in the name of its first citizen, the founder of this edifice.

I beg leave to express the hope that a wise discretion, a faithful suggestiveness, and a sound wisdom may be present in all your deliberations.

Hon. ALBERT P. MARBLE, president of the Department of Superintendence, replied as follows:

On behalf of the Department of Superintendence I thank you for the very kind words of welcome which you have given to this body. The hospitality of the city of New York we all know something about, and from your words we think we shall know considerably more before the week is ended. This association has been in existence nearly a quarter of a century, and its printed reports published each year form something of a literature. There is an inspiration in this noble edifice, devoted from top to bottom to education, and we expect that as we enter upon this meeting we shall feel it. In conversing with a judge of the supreme court, about six months ago, he said to me of the profession to which I have the honor to belong that it was greater than to be a judge of the supreme court, "because you are the men that make the men that make judges." And again I wish to thank you on behalf of the association for the cordial words of welcome which you have given us; and now, ladies and gentlemen, I wish to say a few words to you.

The National Educational Association was organized in 1857. We are therefore hard upon its quarter centennial. The body is composed of persons actively engaged or interested in the work of education. Early in the history of the association there were organized within it departments composed of those members specially interested in one branch of education. These departments have increased in number till we now have one of superintendence, one of normal schools, of elementary instruction, of higher education, of industrial education. There is also a council of education, designed to formulate conclusions to which the discussions of the association may lead. Membership in the general association is a prerequisite for membership in either of these departments. The proceedings of the association and the addresses delivered are printed annually in a volume which is distributed among the members. The proceedings of the several departments are included in these volumes, each of three or four hundred pages.

The Department of Superintendence is one of the oldest of these. I find it first mentioned in 1858. This, then, must be at least its twentieth anniversary. It has heretofore held its winter meetings in the city of Washington. The membership includes State, city, and township superintendents of schools. Superintendents from half, sometimes from three-fourths, of the States of the Union attend these meetings. Such is the body here met. It was through the influence of this department that the Bureau of Education at Washington was established, and General Garfield made a telling speech in the House of Representatives on the passage of the bill creating the Bureau. By means of this Bureau information respecting the public schools and all other kinds of education is disseminated. This department is also the medium by which the latest and the best in educational reforms, especially that which relates to the public schools, is spread abroad; for the interchange of ideas, both in public discussions and in private talk, tends to this result.

The body which this assembly represents, the teachers of the land, are the builders of the future America. Their work is not seen in a day; the results are far-reaching; the conducting of a nation's education should command the highest wisdom. Congress legislates for the present America with but partial reference to the future. Education relates solely to the future. Is there any grander work than this? If the Interior—largely concerned lately about a few Indians—is made a Department of the General Government, how about Education? It may be that the subject ought to be confined in a small bureau; and it may be that it ought not. This department of the Educational Association has never urged more prominence for its affairs. It has chosen to work quietly, as the Bureau at Washington has. But the example of other nations suggests my inquiry. There is no national control of education; it may be that there should never be even the semblance of such control; but as an individual—for this is not said as a representative of the department—I do not see that anybody need to be frightened, if, in some particulars and with proper restrictions, the National Government should act in the matter of public and universal education. Why not? Is it not of interest to each of us whether our fellow citizens, who participate with us in the exercise of sovereignty, are intelligent?

There are many publicists who advocate, in all matters, the fullest exercise of local option. They appeal to Jefferson, who is its great apostle. Let us see what he says about public education; it applies to all grades. In the discussion of "A bill for the more general diffusion of knowledge" before the legislature of Virginia, 1779, he said:

It becomes expedient for promoting the public happiness that those persons whom nature hath endowed with genius and virtue should be rendered, by liberal education, worthy to receive and able to guard the sacred deposit of the rights and liberties of their fellow citizens, and that they should be called to the charge without regard to wealth, birth, or other accidental condition or circumstance. But the indigence of

the greater number, disabling them from so educating at their own expense those of their children whom nature hath fitly formed and disposed to become the useful instruments of the public, it is better that such should be sought for and educated at the common expense of all than that the happiness of all should be confided to the weak or wicked.

There is an awakened interest in this country on the subject. The New South joins us in fraternal contest to obtain for itself the benefits that have flowed from public universal education at the North. In building up a new system they at the South have this advantage of us: there is no old lumber in the way. The Peabody fund has been a stimulus for them, and it will continue to be so. This new interest at the South displays itself in building up; at the North it shows itself in attacks with a view either to reform or to destroy. In either case our critics are our best friends. For no institution, no individual, attains its full strength without a contest. The young eagle learns to fly by being thrown from the cliff; its eye grows strong by gazing on the sun—so they say. The child contends with measles, whooping cough, chicken pox, and what not before he is a man. We never knew the strength of the Government till it was tried. So the public school system must resist attacks, or its friends will not know what it is worth. Accordingly, we say to Mr. Richard Grant White: "Please write us another Common School Failure." We glory in the way the first article was met; we didn't know before how strong the schools stand in the affections of the people. We leave it to the free college from which he was graduated to discipline him; we wait cheerfully the next discharge. Trained in the public schools, it may be said that a man ought to know whether they are a failure, for he has experienced their influence in his own person. But he may not be able to diagnose his own case. Perhaps he does not discriminate among the influences to which he has been exposed. A man of great ability ought to be satisfied. But if he will attack his schools, who knows but he may next find fault with his grandmother?

The awakened interest in education is evidenced by the reformer, numerous varieties of whom make their appearance through the public public prints almost daily. They develop scientifically, as they think. They are active, and enthusiastic, and visionary, and empirical, and alert. Defects they find, of course; they prescribe a remedy; it fails. They try another; it does not cure. They create a revolution; it does not pervade the land. And then, exhausted and discouraged, they bow the head in sackcloth and sit them down in the wilderness of faded hopes and feeble products, which their own morbid imagination has created; and there, like the ancient prophet, the lamenting Jeremiah, they deplore the forlorn state of our Israel! They might save themselves the trouble of these experiments and failures by studying the work of other people. They would see that the race has gone through the experience; and that the individual might profit by his ancestors, and not try to learn it all for himself. It would be amusing if it were

not sad to see how teachers and all concerned in school work are made the subject of adverse criticism. No case of fraud comes up but the blame is laid at their door; no smash-up on a railroad but the defective education in our public schools comes in for a rap; no record of immorality appears but the "godless schools" have to take the blame of it. If an accident happens in a school such as often happens at home the teacher was careless, of course. I cut this from a paper last autumn:

A SCHOOL TEACHER BURNED TO DEATH.

Fannie Knapp, a teacher in one of the Sutton public schools, was fatally burned Monday because one of her pupils threw a lighted match under her dress. The flames spread so rapidly that she was injured beyond recovery before they could be extinguished, and she died in a few hours.

Not much was said about the unfortunate Fannie Knapp. The public was not much concerned about her; she was nothing but a teacher, and she was paid a salary. It turned out later that it was the girl, a pupil, who had died; the teacher exposed her own life in trying to extinguish the flames; that was all. A good deal was said about the unfortunate child, but nothing was made public about the heroism of the teacher! If the accident had happened through any fault of hers how "our schools" would have been berated. No complaint is made of this tendency; the schools can stand it; they will grow better in consequence of it.

In contrast with the critics and the reformers, are those who expect of the public schools the miracle of universal, omnipotent, all pervading, ceaseless activity and influence. If a new mode of ventilation is devised, it must be applied at once to the public schools; every sanitary improvement seeks at once the public schools; every moral reform, temperance, sewing for the multitude, cookery, the society for preventing cruelty to animals, cruelty to children, cruelty to men and women, and everything, and the society to furnish top boots and fur mittens to the people of Borneo—all are no sooner provided with a chairman and secretary than they move at once upon the public schools to inaugurate the new benevolence. They estimate that one-sixth of all the population are in school; a very small contribution from each will aggregate a large sum; each child, when inspired with the new spirit, will be a missionary at home; and the whole community can in this way be moved. Like Sellers, they think "there's millions in it." Every good thing, they think, should be at once introduced into the public schools. The fact is, they can't all be introduced there.

A youthful citizen of a city where this sentiment prevailed full as widely as the Maine law was executed, had imbibed this spirit of the age, and too much of a spirit unfortunately not confined to this or any other age; he reached a conclusion which he announced in front of a saloon, with a slow and gloriously indifferent tone of voice, and with an air of lofty superiority to the ordinary utterances of mankind: "Whiskey's a good thing; it ought to be introduced into the public schools."

There is a class in the community which is possessed with the notion that all the school methods heretofore adopted and practised are wrong. Children must not be condemned to plod away in the old ruts. Let us make it interesting for the little folks. No more of the dull, dry study! No more poring over books. Study nature. Let the child go forth into the fields, beside the brooks, and "list to nature's voice"—all in a highly poetic strain. That is all very good in moderate quantities. But nature alone cannot secure good education; there is work in it, and work means sweat. There is, indeed, one easy road, down hill all the way. And you know where it leads to! The friends we are now describing make teaching almost wholly oral—what the Orientals would call "chin-chin."

There is philosophy, if not modern "methods of education," in the following:

Deer Isle, up near Mount Desert, has plenty of schools for the native children, but all the boys are rushed through the course at an early age and sent to sea, for which they are prepared by a course of navigation. One young chap had a teacher who was fond of natural history but did not know much about mathematics. One day, after she had given him a long dissertation upon a bee that had flown in at the window, the little fellow, who knew he could have at the longest only three months' schooling before going to sea, suddenly exclaimed: "I say, missis, 'scuse me, but I dunno as I care how a bumblebee's wings is made; I hain't no time for sech things; I want to know how to cipher!"

Turning, now, from the elementary schools, let us for a moment consider another class of "educators" who aim at a higher state than the ordinary mortal attains. In the classic shades of some ancient university, they pass through all the philosophy of the ancient classics; Greece and Rome they exhaust; they wing their adventurous flight to the prehistoric philosophy of the east; Buddha and Confucius they note in passing; and then they go on to protoplasm, the original germ of things, primordial cells, and the development theory of the physical man; and beyond this they advance to the primordial cells of mind, the essence of the uncreated *ego*, and the great First Cause, the ethereal, idealistic entity, or whatever it is called, the mother, the original matrix of the universe.

With these superior beings, so developed, etherealized, and sublimated, the ordinary affairs of the world dwindle into insignificance; the things that engage common men sink into nothingness. These philosophers affect an "indifference." In their eyes you see the dreamy, far off look which betokens the sage rapt in the contemplation of the great unknowable and the unattainable. They are often unsuited for the business, the pleasures, the achievements of this century and this age. To the question of the training of the young they come clothed in doubts concerning the possibility that the mass of men can ever attain that blissful state to which they have come. They give up as hopeless the attempt to raise the multitude; and so they confine themselves to the problem of opening the eyes of the select few who may attain Nirvana,

the blissful state of Buddha. This state, which they have reached, is thus set forth in the *Light of Asia* by Edwin Arnold, lately published:

Thus "finishing the Path;" free from Earth's cheats;
Released from all the skandhas of the flesh;
Broken from ties—from Upādānas—saved
From whirling on the wheel; aroused and sane
As is a man wakened from hateful dreams.
Until—greater than Kings, than Gods more glad!—
The aching craze to live ends, and life glides—
Lifeless—to nameless quiet, nameless joy,
Blessed Nirvana—sinless, stirless rest—
That change which never changes!

Let the demi-gods rejoice in that state and admit to it the few congenial spirits whom they can find. We want none of it in this country except as a spice, a condiment to mingle in little doses to flavor the body politic.

Another class of our friends seek in the public schools preparation for every trade and occupation in life. They confound the general preparation which we ought to give and can give with that special preparation which comes of long practice in actual affairs. Instead of a geography, they would substitute a plane; for a slate, they put in a hammer. This playing at work is a sham; the boy sees it to be a sham; he becomes a sham. True education is broader than that. Hear what Horace Mann said forty years ago:

Far above and beyond all special qualifications for special pursuits is the importance of forming to usefulness and honor the capacities which are common to all mankind. The endowments that belong to all are of far greater consequence than the peculiarities of any. The practical farmer, the ingenious mechanic, the talented artist, the upright legislator or judge, the accomplished teacher, are only modifications or varieties of the original *man*. The man is the trunk; the occupations and professions are only different qualities of the fruit it yields. The development of the common nature, the cultivation of the germs of intelligence, uprightness, benevolence, truth, that belong to all—these are the principal, the aim, the end; while special preparation for the field or the shop, for the forum or the desk, for the land or the sea, are but incidents.

Standing on this broad foundation, the development of man, the schools will be useful and rest secure. The contiguous territory of all sorts of trades in school is sand. Whoever builds upon it will see his house swept away. And within the proper sphere of public school education there is work enough to do.

Into this great mart, with the products of every land, float the peoples of the whole world. Here, the liberty loving Englishman escapes the restraints of an insular life; the sturdy Scotchman plants his family tree on this soil; the Irishman finds here the freedom denied him at home. Here the mercurial Frenchman and the phlegmatic German mingle, with a product better than either. Spain and Italy, Austria and Turkey, Russia and Sweden, Norway and Denmark, send their quota to make the city cosmopolitan. Asia, Africa, and the islands of the sea

make contribution to a society here, where all peoples, tribes, and tongues meet, and whence issue streams to flow all over the land. This city needs, the country needs, some alembic in which these heterogeneous elements shall be fused into homogeneity; some agent or force that shall transmit all nationalities into American citizens. That alembic is the public schools; that force is education.

Mr. MARBLE then read the announcements for the meetings of the week, and introduced WILLIAM T. HARRIS, LL. D., of St. Louis, who read a paper on "The present aspect of education," the manuscript of which has not been revised in time for this publication.

At the conclusion of this paper the department adjourned to meet the next morning at the hall of the Young Men's Christian Association.

SECOND SESSION — WEDNESDAY MORNING.

NEW YORK, *February 9, 1881.*

The second session was held at 9.30 A. M., in the hall of the Young Men's Christian Association. Mr. MARBLE called the meeting to order, and said that as the secretary and treasurer were absent, the first business would be the election of an officer pro tempore, whose duty would be to report the meeting, collect fees, &c. Mr. H. M. Harrington, of Bridgeport, Conn., was nominated and elected unanimously. Mr. MARBLE then introduced Superintendent Andrew McMillan, of Utica, N. Y.

Mr. McMILLAN said:

In the first place I propose to inquire whether statistics are necessary as aids to our work, and, if they are, then whether they ought to be specific and accurate in all respects, throwing away all estimates and getting down to exact facts; and, in the next place, whether they ought not to be uniform, so that we can make comparisons readily.

He then proceeded to read the following paper:

UNIFORMITY OF SCHOOL STATISTICS.

Statistical facts, however crude in character or limited in extent, have been recognized by all nations as the legitimate foundation for the operations of general government. These were at first collected in the simplest form, being merely an enumeration of the population, chiefly for the purpose of ascertaining the numerical national strength, for the purposes of offensive or defensive military operations; hence, the census of population may be reckoned as the progenitor of all statistical systems.

The establishment of governments brought also the necessity of providing means for their support; hence the imposition of taxes upon the resources, mainly the industries, of the country.

The collection of these revenues necessarily disclosed the social, physical, and intellectual condition of the people, furnishing data on which

plans of government were framed and operated. Thus, in a primitive manner, at a period far remote from the present, was laid the foundation for our present comprehensive system of statistics, to which we are very largely indebted for a fund of general knowledge.

As early as the fourteenth century statistical records were officially made, and of such importance to students of political science were they deemed, that elaborate works descriptive of commerce, population, &c., were compiled, published, and used as text books in the universities of the principal countries of the Old World.

In the sixteenth century valuable works on this subject were published from time to time, and widely circulated, some of them going through several editions.

From these small beginnings originated the system of collated statistical information, upon which all progress, whether scientific, physical, moral, or intellectual, is established and carried forward. Says an eminent writer: "That it is necessary for a government, in order to govern well, to acquire information upon matters affecting the condition and interests of the people, is obvious. Indeed, the civilization of a country may almost be measured by the completeness of its statistics. However rude the government may be, it cannot attempt to make laws without having acquired the means of forming a judgment, however imperfect, as to the matters brought under its consideration. In this sense, statistics may be said to be coeval with legislation." Although the value of statistical information was universally acknowledged, no action seems to have been taken looking to the establishment of an international congress of statisticians until the year 1853. At that period, however, delegates from the various representative governments of the Old World, uniting with our own, met in conference in Brussels for the purpose of effecting harmony and uniformity in the statistical work of nations. Much was accomplished for the object contemplated, which was, to enable each government to make comparisons readily and accurately with the others. The results prove that incalculable benefits have accrued to all from the efforts of this convention.

In our own country rapid advancement has been made in collecting and disseminating statistical information, both by the Government and various societies devoted to the purpose. If in private life an individual would be successful in business, he must at the close of each year know the exact condition of his affairs as compared with that of previous years, that he may thus be enabled to arrange his plans for the future. So, also, must a government annually ascertain the exact condition of all the departments of which it is composed. No legislator is competent to assist in framing the laws of a country without first having made himself familiar with the moral, social, and political condition of the people. This knowledge can only be obtained by studying statistics relative to the material resources, industries, education, and other topics of his own country and of other nations. Thus only will he be enabled by com-

parison and study to recommend the passage of laws that will tend to the general improvement of his state or country.

In collecting statistics the government of course must take a comprehensive view of the needs of the several departments that unitedly aim at the welfare and prosperity of the country, each department, however, especially desiring to study mainly such matters as pertain to its special work. The agriculturist seeks information in regard to improvements in agricultural implements, the extent of the land under cultivation, its adaptiveness to certain crops. Statistics in regard to the extent and condition of agriculture will virtually control the market in bread-stuffs, not only here, but in foreign countries.

Manufacturing interests are affected by statistical knowledge of supply and demand; knowledge which also forms the basis upon which to extend commerce, build canals, conduct railroads, and found cities. It reaches far into every plan of social and political economy affecting the interests of individuals as well as communities. So in all departments of government is correct statistical information not only desirable, but absolutely indispensable.

In the department of education we may learn much through the regular channel of personal observation in our routine duty, we may experiment with the varied methods of teaching, adopt new plans of discipline, improve and extend the course of study, and by noting mistakes and remedying imperfections bring our respective departments of school work to a condition somewhat commensurate with our high standard; but much more could be accomplished were we able to add to this local knowledge general statistical facts bearing upon the subject, and collected from all parts of the country, which should serve as the basis of comparison and useful deduction. With the ample provision made by government for collecting facts connected with schools, it would seem that we have but to turn to official reports to obtain all desired information. But it is just here we are confronted by an obstacle of no small dimensions, and which so far as I know nowhere else exists in the wide domain of statistical research. I refer to the lack of uniformity in the methods of collecting facts and data pertaining to school work in the different States of the Union.

It is admitted in the outset that special acts adapted to widely diversified districts necessarily involve a large amount of detailed statement. But this detailed work can be so condensed and generalized as to become available for State and national reports. I refer now, however, to the irregular systems of keeping school statistics, which are not only apparently unnecessary, but render reports coming from the several States nearly useless for purposes of useful comparison.

Take, for example, statistics in regard to the legal school age as it exists in the various States. This is of course an arbitrary enactment, made for the purpose of securing an equal distribution of the State school fund among the various districts in just proportion to the school popu-

lation of each. But pecuniarily it can make no difference whether the limits of that age be prescribed as 4 and 21 or 6 and 18 years, since the pro rata will be the same in either case.

In illustration I cannot do better than refer to the last annual report of General Eaton, United States Commissioner of Education.

From this document the legal school age, as reported from 38 States, 6 Territories, 3 Indian reservations, and the District of Columbia, is as follows:

Of 5 it is from 4 to 21.	Of 1 it is from 7 to 18.
Of 8 it is from 5 to 21.	Of 1 it is from 10 to 18.
Of 9 it is from 6 to 21.	Of 1 it is from 5 to 17.
Of 3 it is from 7 to 21.	Of 1 it is from 6 to 17.
Of 2 it is from 4 to 20.	Of 1 it is from 4 to 16.
Of 3 it is from 5 to 20.	Of 2 it is from 6 to 16.
Of 3 it is from 6 to 20.	Of 2 it is from 5 to 15.
Of 2 it is from 5 to 18.	Of 1 it is from 8 to 14.
Of 3 it is from 6 to 18.	

From these data we find that 17 different periods of time are established as legal school age in forty-eight States and districts. For purposes of comparison it will be seen that this report of school population of the United States is not only valueless, but may lead to misapprehension and gross deception, as one or two examples will clearly show. The legal school age in the State of Florida is from 4 to 21 years, being a period of 17 years, while in the State of Texas it is from 8 to 14, or a period of only 6 years. Hence, we find a striking disproportion in these two States of children of school age as compared with the entire population.

Again, the State of New York prescribes the school age as from 5 to 21 years, while the State of Massachusetts limits it to 5 and 15 years. Again, referring to General Eaton's report, I find the school population of the State of New York to be 1,615,256 and the number of pupils enrolled in school to be 1,032,052, showing 583,204 persons of legal school age not attending school during the entire year. In Massachusetts the number of children of school age, according to the same report, was 297,202, and there were enrolled in school 310,181 pupils, being 12,979 more than the entire school population. Judging from this statistical standpoint the inference is clear that illiteracy is much greater in New York than in Massachusetts, which is not true, as the last published United States census report shows that the number of persons above 10 years of age who cannot read is 1 per cent. greater in Massachusetts than in the State of New York. Could the same school age be adopted in all the States, this difficulty and confusion in the comparison of statistics on this point would be avoided, and at the same time they would be just as useful for local purposes.

There is also a great difference in the manner of keeping the financial statistics, not only in the different States, but also in the different dis-

tricts of the same State. This often leads to unintentional injustice, especially in regard to the comparative cost per pupil for a year's tuition, as the comparison is made on the entire amount expended for all school purposes instead of on the current expenses. Tables founded on these reports are often arranged in years when some districts or cities have erected one or more school-houses, while in others no extra expenses have been incurred. Of course the tuition would be much greater in proportion in one case than in the other, as the new school-houses may cost as much in that particular year as the entire contingent expenses. Would it not be wise, therefore, to classify expenses under two general heads, as ordinary or current expenses and extraordinary expenses?

It seems to me there might be more uniformity in the manner of keeping the records of school attendance. In some cases the average attendance is made out at the close of each month, and the yearly average is compiled from these monthly reports; while others make the average for the entire year.

Again, there is a great diversity in obtaining the number belonging, some striking the names of pupils from the roll after an absence of five consecutive days, and others after an absence of ten days, &c. Perhaps this, however, is not of so much consequence, as all manage to get the average attendance on number belonging at about 98 per cent. I believe, however, that this average is not required in State reports, and ought to be stricken from all reports. The whole number enrolled and the average attendance are all that is needed for comparison.

I might go on and point out many other discrepancies in the present manner of keeping school statistics, but enough have doubtless been presented to show that reform is needed in this department of our work.

In closing, I will present for the consideration of this association the following outline for blanks for keeping school statistics sufficiently in detail for general reference, and which can easily be compiled from the more detailed reports that may be required in different localities.

ANNUAL REPORT FOR CITIES OR DISTRICTS.

1. Total population according to the last national or State census, ———.
2. Number of children between the ages of 6 and 16 residing in the ——— at the date of this report, ———.
3. Number of public schools in the ———, ———.
4. Number of private schools in the ———, ———.
5. Number of pupils enrolled in the public schools during the year. Boys, ———; girls, ———; total, ———.
6. Number of pupils enrolled in the private schools during the year. Boys, ———; girls, ———; total, ———.
7. Whole number of days' attendance of pupils in the public schools during the year, ———; boys, ———; girls, ———; total, ———.
8. Whole number of days the schools were in session during the year, ———.
9. Average daily attendance of pupils in the public schools during the year, found by dividing the whole number of days' attendance by the number of days the schools were in session. Boys, ———; girls, ———; total, ———.

10. Number of teachers employed in the public schools during the year. Male, —; female, —; total, —.
11. Number of teachers licensed by State authorities. Male, —; female, —; total —.
12. Number of teachers licensed by local authorities. Male, —; female, —; total —.
13. Annual salary paid men principals. Maximum, —; minimum, —; average, —.
14. Annual salary paid women principals. Maximum, —; minimum, —; average, —.
15. Annual salary paid men assistants. Maximum, —; minimum, —; average, —.
16. Annual salary paid women assistants. Maximum, —; minimum, —; average, —.
17. Number of volumes in public school libraries, —.
18. Total value of library, —.
19. The number of public school-houses in the — is: Frame, —; brick, —; stone, —; total —.
20. Total number of sittings in all the school-houses, —.
21. Value of school property:

{	houses, —;
{	sites, —;
{	furniture, —;
{	apparatus, —;
{	total, —.

FINANCIAL.

Receipts.

1. Amount on hand at date of last report \$
2. Amount received from State fund.....
3. Amount received from local tax
4. Amount received from all other sources.....
- Total

Expenditures.

Ordinary expenses:

1. Teachers' wages
2. Supervision
3. Janitors' salaries.....
4. Fuel
5. For ordinary repairs
6. School books
7. All other incidental expenses, such as printing, rent, &c
- Total

Extraordinary expenses:

1. For sites
2. For building and purchasing school-houses
3. For extraordinary repairs.....
4. For new furniture and apparatus.....
5. For new library books
- Total

Amount on hand at date of this report

- Total.....
6. Assessed valuation of the city or district.....

7. Total tax for school purposes: { ordinary
 { extraordinary
 { total.....
8. Tax per dollar on the assessed valuation of the city, for ordinary expenses ..
9. Tax per dollar on the assessed valuation of the city, for extraordinary expenses.
10. Average expense per capita for year's tuition, based on number enrolled, including incidental or ordinary expenses

The discussion of this subject being laid before the meeting, Mr. STONE, of Springfield, Mass., said that he had listened to the reading of the paper with a great deal of interest, and was glad that other people were bewildered in attempting to compare the school statistics of the different cities. He did not see how this matter could be reached unless by compelling the adoption of a uniform system. He said that the populations of Springfield and Portland were nearly the same, while the school population of Portland was 10,000 and of Springfield only 6,000, owing to the difference in the school age in the two places. He thought that the per cent. or average attendance was often very misleading. He had only a day or two before visited a school where there were only twelve present, forty-four pupils having the measles.

Mr. McMILLAN said he thought the gentleman (Mr. Stone) had misunderstood him; that he had taken very broad grounds. He sympathized very much with Mr. Stone that there was not more uniformity especially in regard to school population.

General EATON said that different localities recognized school periods of different lengths for special reasons. He thought that children should be enumerated by years, from 5 to 21, perhaps, inclusive. Then there would be no difficulty in making comparisons. In 1870 the Bureau of Education had great difficulty in making its tables so as not to be misleading, but now, notwithstanding the differences in the school period in the different States, it was able to present tables of two hundred cities quite safe to study. General Walker has now collected his schedules for the census, and in them is contained the very information that Dr. Stone wants and that all want. He understood that General Walker had asked Congress for an additional appropriation in order to properly compile these schedules. In conclusion, referring to the high school discussion as a great question agitating the public mind to-day, he said that a foreigner coming to this country found the high school in our cities a distinctive American feature, one especially and most closely connected with the large intelligent class upon which the strength and vigor of American institutions especially depend, and added that a suitable method of reporting the facts connected with this grade of instruction is needed, so that it may be properly understood.

Dr. PHILBRICK spoke of the high estimation in which the school statistics of the United States are held in Europe.

Mr. SMART said that there was nothing so uncertain as facts except figures; that facts often lied and figures generally did; and so he thought there could be no subject which could be discussed to more

advantage than this. He said that a certain per cent. would be found enrolled in the public schools, and that Massachusetts was given as 110 per cent. because the children were enumerated from 5 to 15 years of age and admitted after they were 15. He thought that it was very necessary to have the information contained in General Walker's schedules, and moved that a committee of five be appointed by the chair to present this matter to the attention of Congress.

Considerable discussion ensued as to the number on committees and their duties, participated in by Messrs. Wickersham, Eaton, and Philbrick; and the chair (Mr. Marble) then appointed the following committees:

To memorialize Congress: J. H. Smart, Indiana; A. P. Stone, Massachusetts; Aaron Gove, Colorado; D. F. DeWolf, Ohio; M. A. Newell, Maryland.

Committee on the unification of school statistics: J. D. Philbrick, Massachusetts; J. P. Wickersham, Pennsylvania; C. W. von Coelln, Iowa; A. Parish, Connecticut; J. O. Wilson, District of Columbia; James P. Slade, Illinois; W. W. Waterman, Massachusetts; N. C. Dougherty, Illinois; E. A. Hubbard, Massachusetts; Andrew McMillan, New York.

After a recess of five minutes, Mr. MARBLE read invitations for the members of the association to visit a number of schools, and more especially the Normal College of the City of New York.

WEAK PLACES IN OUR SCHOOL SYSTEM.

Mr. MARBLE then called upon Hon. J. P. WICKERSHAM, State superintendent of public instruction of Pennsylvania, who said:

As the president is aware, I have no formal paper to read on this question. All I propose to do is to make a few remarks, pointing out with a friendly spirit such weak places as I have met with in the administration of public education. We have had very severe criticisms of late upon our system of education, from the outside. They do not receive from me any great sympathy, because they are written by persons very little acquainted with the public school system.

A prudent general before beginning a battle rides along the line for the purpose of ascertaining whether there are any weak places that the enemy might take advantage of. We are fighting the great battle of public education, the education of the people, and it has seemed to me that as superintendents it would be very wise for us to look along our line and see if there are not some weak places that an enemy might take advantage of in a close fight, in the close fight which is coming.

I have little sympathy with the recent book by "Gail Hamilton." As she looks at it, our system has too close an organization; the teacher is not free enough to work out his own individuality. These criticisms it seems to me are not well founded. She ought to have remembered that there is a kind of organization that builds up, and does not tear down

or repress; that organization is necessary in every great work; that nothing is accomplished without it; and although here and there this great machine may press heavily upon one or another, yet we must have a machine in education as in everything else, and machines are good things, even in politics, provided they aim at a high purpose. This book, Mr. President, I consider a weak book.

Then we have the criticism of Richard Grant White. Who is Richard Grant White? What does he know about our systems of education? Has he ever attended our educational meetings? What does he know, that he should undertake to pronounce our public school system a failure? What experience has he had that he can speak on this subject? I have no hesitation in pronouncing that paper of his, as published in the *North American Review*, as unworthy of the subject, unworthy of the author, and unworthy of the great *Review* in which it appeared.

He quotes as proof of these failures that the applicants at West Point have not succeeded as well in late as in former years. You and I know that this is not the fact. This has again and again been proven to be untrue.

First of all, I think it a weakness that school boards and school committees do not possess a greater knowledge of the subject of their duties. They are elected by the people in nearly all our school districts, large and small. I know there are a few exceptions. I think it a weakness that they do not possess more special knowledge in reference to the matter intrusted to their hands. These gentlemen are generally men of intelligence. They are good business men. They are lawyers, doctors, clergymen, merchants, farmers, and are generally selected judiciously; and yet their want of special knowledge is a weakness.

As school directors these gentlemen are intrusted everywhere with the duty of providing apparatus and text books. No one but a teacher, and no one but an expert teacher, is prepared to do this. Again, the duty of these gentlemen is to construct a course of study. This is one of the most difficult pedagogical subjects that we have to deal with. Then, too, they are to be the judges of results of teaching, of methods of education, and the selection of teachers, and yet they are not specially fitted for it. The only discovery made at Quincy was that the members of the committee were unfitted to deal with the question of public schools; but this was a discovery of the greatest value, and should be made known everywhere.

Now, Mr. President, I want to point out another weakness, that is, the want of more experts in the work of supervision. We have probably a thousand gentlemen holding the position of superintendent of schools in States, cities, and counties throughout this country. We need a larger number who will devote their lives to the business of supervising schools. The work of supervising schools in this country is not well done, is not thoroughly done. We need a much larger force. Probably no State in this country is better organized than my own. We have ninety-two

superintendents in my State, and they are all commissioned by the department of public instruction, and all work together as one man. But then we have not half as many in the State of Pennsylvania as we need. We must look to it all along the line, that wherever we can we may strengthen it. It is weak in this respect in Ohio and weak in Massachusetts and weak elsewhere. We should strengthen this right arm of the whole system.

Now, Mr. President, let me point out another weakness, which is that the status of the teacher in the United States of America is not very satisfactory. It requires high art to educate a child. It requires far more skill than to chisel out a statue or paint a picture. Yet, the most difficult art in the world, the most difficult of all arts, is to train a child up to be a man, a full grown man. How young the teachers are! How frequently they are changed! We have them about five years, and then they are gone. Their term is short, their salary low, their tenure of office uncertain. We should see to it that the status of the teacher should be more satisfactory. We should multiply our normal schools and make them better. We should increase our teachers' salaries and press forward the whole work of lifting teachers up to a higher professional plane.

I want to call your attention to another weakness, and that is, children are not kept in school long enough. Large numbers leave school at an early age. Many children simply learn the elements of reading, writing, and arithmetic. And should the public school system be held responsible for those that attend the public schools but for a day, or month, or year? You will find in the prisons of the country a large number of those who have been in the schools for a short period; very few who have graduated from high schools. More than half of the inmates of prisons have been at the public schools a short time, but have acquired only the mere elements of knowledge, and therefore the public schools are not to be held responsible for a weakness of that character.

And this leads me to point out only one other weakness, and that is, that we still want a plan by which those that do not go to school can be brought into school. I have not much faith in a compulsory law in this country; that is, by means of fines and punishments. But there must be a way, and we must find a way, to gather these children into some suitable institution. I think perhaps it can be solved in this way: by making it the duty of school boards as much to look after the children out of school as those that are in school. Then give them power to appoint an agent, half constable and half missionary, more missionary than constable, and bring them into the schools. School boards and teachers and good citizens can do much, and, to make their efforts fully effective, there ought to be schools for neglected children in all cities and thickly settled counties.

These weaknesses are of a general character. These are the points at which our system is weak, and which, if we want to win a victory

for education in this country, we must apply the necessary means to strengthen.

Hon. B. G. NORTHPROP, secretary of the State board of education of Connecticut, said :

I will merely give a skeleton of the points I will urge. I think it is a point of great weakness that we have not in Washington a high school. It is necessary, if a high school be maintained in that city, that it should be supported by the National Government.

I think a cardinal weakness is the insufficient qualifications on the part of our teachers. If we can have throughout America well qualified teachers we shall rejoice. When the Bishop of Manchester was in this country, M. Hippeau, of France, was here also. Each made his report to his own government, declaring that in the schools of America the one defect was the lack of thoroughly qualified teachers.

I sympathize thoroughly with what has been said on the point of more competent and thorough supervision. Our schools suffer on account of too frequent rotation in office. It is exceedingly desirable that this business should not be influenced by political motives. This is a great damage to the system. On that point I need not enlarge.

Our friend has set forth the great weakness of non-attendance. It is a startling weakness, and we ought at once to prescribe a remedy. Every trade union is unanimous in enforcing compulsory education. I should deem a journey to the remotest corner of Connecticut amply repaid if it would bring in one child to the school.

I think one other point of great weakness, not in our system, but of teaching, is that developed in Quincy ; that is, they showed there that hitherto the greatest weakness in American schools was in the failure to develop power of expression. Girard used to say : "The mother tongue—the great educator."

Another point is in the dread, in the fear, which American teachers—and, I think sometimes, American superintendents—have of developing the memory. I do not hesitate to say that you cannot develop it too much. I would not advocate memorizing anything that cannot be understood. I *do* advocate the committing to mind of the gems of literature.

Mr. DEWOLF, of Ohio, said that it seemed that they were in the very infancy of knowledge in regard to remedies. How shall the status of the teachers in the country to-day be changed ? How shall the influence of teachers be made to be felt outside the school room ? It seemed to him that it was not enough to recapitulate these weaknesses, but that thought should be given to changing these things in the several States.

Mr. PARISH, of Connecticut, would not pretend to offer a remedy for all the difficulties considered. Good teachers are wanted. Where shall they be obtained ? Where is the power to demand good teachers

and provide the means by which they should be made ? Liberal appropriations are wanted for the schools. In his judgment, if one single class of persons of the community could be reached, these weaknesses would be removed, and that class is the parents. Theirs were the children in the schools. They had the most interest in them ; not the teacher ; not the school committee. The teacher should go to the home and see what the father and mother think of the conduct of the child. If the parents can be reached, there is a beginning made to rectify this whole work.

Mr. SMART, of Indiana, offered the following resolution :

Resolved, That the Superintendents' Department of the National Educational Association, now in session, hereby tenders to the Hon. Thomas R. Cobb, of Indiana, thanks for his effort to secure from Congress adequate appropriations for the support of the public schools of the District of Columbia, and especially for his recent endeavors to secure an additional appropriation for the purpose of erecting a high school building in Washington, thus aiding in making permanent provision in the capital of the country for that most important part of our American common school system, the free public high school.

This resolution was adopted, and the meeting then adjourned, to meet in the same place at 3 P. M.

THIRD SESSION—WEDNESDAY AFTERNOON.

NEW YORK, *February 9, 1881.*

Mr. MARBLE called the meeting to order, and, there being no business to come before it, at once introduced Prof. CHARLES O. THOMPSON, of Worcester, Mass., who read the following paper:

THE CONSERVATION OF PEDAGOGIC ENERGY.

The doctrine of the conservation of energy has given a forward impulse to all the physical sciences. When Joule showed that heat can be measured in units of work, and Tyndall, following Faraday's pregnant suggestions, discerned the law under which heat, light, and electricity are grouped as modes of motion, all thoughtful persons saw that whole continents of truth lay open to exploration. Physicists arose and trimmed their lamps. Mathematicians contrived new algebras for this new service; foot pounds, ohms, and farads speedily became familiar words; innumerable phenomena which had been vagrants for lack of control came trooping into line under the new laws which had been rapidly announced. Even the inner sanctuary of thought has been invaded, and men are accustoming themselves to think of *thinking* as so much molecular change in the substance of the brain. The possible discovery of a physical method of recording thoughts from the molecular activity of the brain cells is no more to be dismissed as an idle vagary than the telephone and photophone were fifty years ago.

It is not remarkable that the brilliancy of the sudden and enormous gains in the scope of the sciences of matter should have obscured the

importance of the sciences of mind. Mankind have always studied first those phenomena which are most remote from themselves, and they have made steady progress towards themselves. Astronomy was a robust science, dwelling in secure round towers, when chemistry was born, and much more is known concerning chemistry than is known about the mind.

To such an extent have men been overpowered by the rush of new discoveries in physics that many have set about applying the methods of physical research to the phenomena of mind. This, of course, was a questionable process; but it is most natural that the quickening of mind produced by physical research should have extended over the whole field of thought, and that men should demand increasing economy in immaterial agencies when they saw the enormous gains in control and economizing of the forces of nature.

Those who think at all are becoming rapidly familiar with the methods by which physical science secures the most economical conversion of one form of energy into another, and are fretful over the results of school work. Without any thought of measuring an immaterial product by material units, it is yet impossible to avoid the effect which a habit of exactness in dealing with one form of energy has upon all thinking upon any other form. If by exact methods great economy has been secured in the conservation of physical energy, a reasonable and just demand is sure to follow for greater economy in the use of every form of energy. It is not difficult to explain the present critical temper of the public mind towards the public school on this principle; and this critical temper is full of omens of good, for criticism is directed, not against the end of the public school, but against the methods by which that end is sought; for, passing by the dreamers who would abolish discipline and have learning consist in an indolent absorption of agreeable information, and the wise men who would recall the mediæval seclusion of the learned, it is true that the masses of the people believe in public schools and sustain them by large appropriations in spite of recognized defects in the management of them. There is not the slightest indication in any quarter of any weakening of the faith of the people of the United States in the common school. Assuming, then, that the schools rest on a sure basis in the popular conviction of their necessity, I propose in this paper to inquire how the pedagogic energy now expended is uselessly dissipated, and how more of it can be converted into a better kind of man and woman.

A few definitions may help us.

Physical energy is the capability of doing work. It is either potential, as in a bent spring, when it can do work but does it not, or actual, when it does it, as in the spring released. The pendulum at the end of its swing has only potential energy; at the middle, only actual. Energy is the result of force. Of force we know nothing, except as it is revealed in energy.

Pedagogic energy is the result of teaching force. Of teaching force we know nothing more than that it is the power of one mind to awaken, keep alive, and direct a desire for knowledge in another mind. It is given in the structure of some minds. It cannot be imparted or acquired. At least there is no way known of doing this. It is an endowment akin in nature to that of the painter or sculptor.

It is often confounded with skill, but it is not skill, for this may be acquired by manipulation, as the skill of the file cutter or die sinker. Like any other similar artistic endowment it can be broadened by knowledge and deepened by training. Thoroughly well informed, discreet, enthusiastic, and conscientious persons can often simulate these traits and act upon other minds in a way much like that of a teacher, as Mr. Holley once won a wager by running an engine on a level track for a mile, without any fire or steam, by filling the boiler with compressed air. But the teaching force is instantly recognized when it is disclosed in pedagogic energy, though it eludes our analysis.

Like every form of energy, a large part of this is now dissipated. The conservation of energy is the conversion of the largest possible amount of it into other forms.

The end in view in a school is to make the most of the best possible teacher by giving his store of pedagogic energy free play upon the minds of his pupils.

All the many forces that are blended in a good school are auxiliary and subordinate to teaching, and are vainly spent without teaching. For example, the enthusiasm of numbers when not directed after it is awakened may result in squint eyed observation, in bad taste in reading, and in illogical reasoning.

Since our inquiries must be confined to the public school, let us put clearly before us the end in view of this school.

It has been urged, of late, that the only duty of this school is to teach children to read, write, spell, and cipher. This is obviously not the chief end of this useful institution. If it were, it could be secured at vastly less than the present cost. But while this may be conceded to be the direct object of public instruction, there is an indirect object of at least equal importance: I mean the formation of those habits of thought, that proper regard for the rights of others which can only be obtained through daily intercourse in the pursuit of a common end, and that habitual obedience to law which are the conditions of good citizenship in a republic, and an enthusiasm for righteousness. The public school exhibits worth as the only ground of distinction; it blends, in the formative training of early years, all those subtle but energetic forces that children from one rank exert upon those of another, and it gives full scope and efficiency to those *leges non scriptæ* which embody and transmit the net result of ages of civilization and enlightenment, so that the expense of teaching the worst scholar examined by Mr. Walton, for instance, would be amply justified, if that scholar should leave school now, by his

enhanced value as a citizen at the age of twenty-one. For the full results of school life are not capable of measurement by an examination in spelling. The commonwealth cares vastly less about this boy's misspelling his words, making hieroglyphs for letters, and hesitating in his reading than about the kind of man he will be when he comes to vote. And while the kind of man he will be depends somewhat upon the joint action of the enthusiasm of many in a common pursuit, the family, the library, the church, and that most subtle power of personal character, it remains true that good teaching is the greatest and most influential force that acts upon him.

How to make the most of good teaching is the simplest form of our inquiry. Inquiring how teaching is squandered, I call your attention first to the lack of logical sequence in the kinds of work assigned to different grades in the graded schools.

Pupils reach the grammar school unable to add, subtract, multiply, and divide with rapidity and absolute accuracy, destitute of ability to observe natural phenomena sharply and to record their observations in clear and exact language, and with poverty stricken vocabularies. The grammar school is obliged, therefore, to leave its proper work and prepare for it. If all this work were done in the lower schools the grammar school could at once teach technical grammar, the science of arithmetic, and the lessons of history. These branches are referred to as those where reform is most needed.

Philosophers have urged again and again the reasons found in the nature of things for recognizing the order of the mind's growth and the faculties which predominate in childhood as the guiding principle in primary instruction, and they have been supported by a mass of testimony from successful and observing teachers; but hundreds of schools are now taught in ignorance or in defiance of these principles at an enormous waste of time and money.

Why should not technical grammar be excluded from all schools below the grammar grade? Why should not oral lessons in some natural history science—any one that the teacher knows or can be induced to learn—be substituted for the book lessons in grammar which are now inflicted on children, and managed so as to achieve and to secure that ease and fluency and accuracy in the use of words which are the essential quality of a good style?

A good deal of time is spent in our Massachusetts schools in reading; yet, those who examine boys for admission to higher institutions, or who guide their studies there, find that very few know how to read. Of course all know the common words and can call them by name; but very few know how to use books as sources of knowledge. Why should not the thorough reading of even one good author be substituted for the reading book in grammar schools, and so the shaping power of a good style be coördinated with other studies? All good teachers will welcome the new departure in library management by which pupils in

the common school are guided by their teachers in the choice of books and in the right and proper use of them.

To specify a practicable case, why should not reading be partly done out of some history of the United States, like Higginson's, and joined with brief exercises in narration, either oral or written? It is not necessary to furnish every pupil with a book. Two or three copies are enough. This exercise might profitably replace fully one-half the current drill in reading books, with the following advantages: The lively interest of the pupils would be excited, additional and most excellent practice in the use of language would be secured, and the *facts* of history would be fixed in the memory without much effort. This would make history teaching in higher grades a much nobler exercise than it is at present. It would also tend to cultivate a taste for good English by bringing the minds of pupils under the influence of a good author in successive lessons; for no better way could be contrived to arrest and paralyze any tendency to such a taste than the exclusive use of reading books, in which the unhappy pupil runs a muck between two rows of authors, who pelt him with prose from one side and poetry from the other.

There are schools where each of these proposed methods is on trial with such abundant good fruitage as to warrant serious attention to them. Why should not the work in arithmetic be courageously confined to acquiring skill, accuracy, and rapidity in simple computations up to the grammar grade? It is a just complaint that boys and girls who have graduated from the grammar or even the high school cannot add and divide with accuracy and promptness. And if any one can state any good reason why more than half the current requisitions in geography should not be abandoned, a large number of parents would be deeply grateful.

Another waste is the useless expenditure of time in teaching drawing, through all the grades, to every pupil. Somewhere, wherever the wisdom of school superintendents determines, this should cease, and those who evince marked aptitude for drawing should be gathered in evening classes for special instruction by an expert teacher.

Another waste is the enormous overloading of the primaries. A good primary teacher can teach thoroughly about thirty pupils; but the rooms in towns and cities where she has less than fifty are the exception rather than the rule. It follows that the pupils pass up without adequate training, the primary work must be done over, and, of course, the inadequacy of preparation increases at every stage.

It is the common judgment of teachers in secondary and grammar schools that they could do substantially all the work now assigned them if the primary work were well and thoroughly done. That it is not so done is not the fault of the primary teachers; at least it cannot be shown to be their fault so long as they are doomed to the tale of bricks without straw.

Nearly all the evils which afflict our public schools can be traced

directly to a root in the primaries, and a reform here means reform everywhere. The great problem of public instruction is how to effect such a reform. If we propose to increase the number of primary schools we are met by the obvious fact that no great increase in the amount of appropriations from the public treasury can be expected. It is at least a striking coincidence which seems to have the cogency of a law that the amount expended per scholar in the public schools does not exceed the rate of taxation per thousand. It sometimes falls below this limit and sometimes exceeds it by a dollar or two; but whenever it exceeds, a retrenchment scene is sure to follow.

It is necessary, then, to do better work with the means now in hand. I think it easy to show that if each primary school that contains more than forty pupils were divided into two equal parts, and each part taught by the same teacher a half day for the same number of days as now, every pupil will be better fitted for the next grade than he is now, and the teachers would not suffer any greater loss of vitality than now. Probably the teachers would gain by the change rather than lose, in spite of the additional hour per day.

The unoccupied half of the pupils could be provided for in two ways: a large part of them would remain preferably at home; but the other part whose parents cannot easily provide for them must be gathered into half time industrial schools. This arrangement would put an end to what is now the gravest evil in the primaries, namely, the conversion of the school room into a place of temporary refuge for children whose parents are unable to care for them. There is no reason why the school should be turned into a day nursery. It is wiser and more simple to deal with the evil than to evade it. The public is bound to care for poor children. Let the school do its work in its own way, and let the best thing be done for those children who ought to be provided for at the public expense. Let us frankly introduce the *crèche* and not hide it under the guise of a primary school.

It will not lead us very far from the point we are now considering to suggest that in every grade of school teaching energy is wasted in proportion as the number of pupils assigned to a teacher exceeds a very low limit. The enthusiasm of large numbers in the pursuit of a common end is a most valuable auxiliary, and cannot be dispensed with; but, when class work begins, a very small number, ideally from ten to fifteen in a class, are all that any teacher can spend himself on without loss of energy. This, at least, seems to be the lesson of experience. The exigencies of the public school seem to fix the minimum limit at thirty. It is very common to hear good superintendents adduce a small number of pupils per teacher as proof of the soundness of his administration. But by far the most striking and instructive example of the advantage of small numbers is the work done at the United States Military Academy, at West Point.

It is most useful to study the results of the course of study in the

United States Military Academy as a problem in education. Boys are received on precisely the same grounds as give them admission to our high schools, are taught for the same number of years in the same essential branches, and emerge accomplished engineers, ready to cope successfully with the severe difficulties of military science; the boys emerge from the high school without readiness for anything except college. The difference is explained when the fact is stated that the teachers at West Point are selected for their known excellence as teachers, and no one ever undertakes to teach more than twelve students at a time. There is no evading the force of these facts.

West Point has done a better and nobler work for education than for arms, but this inspiring achievement in education has been strangely overlooked.

Let me not be understood as urging that West Point can be transplanted into our common schools or that it ought to be exactly imitated, but it cannot be forgotten that the Military Academy has been sustained by large appropriations by the people of this country through all the vicissitudes of party politics, because it has done well and thoroughly its appointed work. It is, in an important sense, a public school. The people, therefore, can be relied on to sustain good work. And the great example of West Point as a success in pedagogy may teach us that training is a higher end than the diffusion of information, and that the methods of instruction which have proved efficient and successful in any school are worthy of careful attention everywhere.

It is impossible to avoid alluding in its turn to the strange neglect of the memory in our public schools. Nothing strikes an American observer of European schools more forcibly than the easy recitation by pupils of extended passages from good authors—an exercise almost unknown among us. In reacting from the danger of overtasking the memory the pendulum has swung to the extreme of neglecting it.

Another waste of teaching force is the substitution of general intelligence for mastery as an end in view. The American boy now aims at knowing something about everything instead of everything about something, so that the number who come to real life with a consciousness of mastery is annually diminishing.

The quick instinct of students of social science detects this quality, and such inquiries as this begin to appear: Who will succeed the poets Longfellow, Lowell, and Holmes? The orators, Phillips, Curtis, Bullock—all men advanced in life? Are "great men" disappearing from politics? The weak answer is sometimes essayed that the average attainments are so high that greatness has become impossible—as if excellence were an absolute instead of a relative quality.

It is time to inquire with great earnestness whether our systems of public instruction have not begotten in us a certain confidence in the educating power of a system, apart from teaching, and whether in the necessary solicitude about school-houses, text books, charts, ventilation,

&c., we have not overlooked the fact that all these things are subsidiary to teaching, and without it are wholly futile.

I have sometimes felt a grave fear, when I have observed the immensity of our new school buildings and our carelessness about the school teacher, that the historian of education a thousand years hence will style this the age of the mound builders.

The words of Professor Weir, in the *North American Review* for January, 1881, deserve serious consideration :

I declare it to be a fact that just as the prevalence of mechanical agencies in manufacture has destroyed all personal skill in handicraft, * * * so do these vast educational machines, when divested of personal sympathies and personal impulses, tend to a like result in developing the mind.

This want of mastery in the graduates from the schools is the grain of wheat in the bushels of chaff about the lack of practical worthiness in them.

How shall we render the course of study more practical? I answer, first, by taking out a good deal of it and securing something like mastery of the rest. A boy who has mastered a few fundamental things is far more likely to become soundly intelligent than one who has been mastered, as most now are, by a good many things. Fewer studies better taught is the remedy for this evil. There are two special cases under this head which deserve notice. The high school is said to unfit boys and girls for practical life. "It is for the good of the commonwealth that, while nature is yet plastic, children should acquire the manual dexterity and the habits of patient, persevering labor which are essential to their happiness and their success."

This is all true, in a sense. It is true in many cases that the high school graduates are fish hooks not bent on to any lines. But all attempts to cure this evil by introducing what are called more practical studies have failed. Book-keeping, laboratories, and cabinets leave the sore unhealed. The mistake lies in this substitution of smatter for knowledge, and if every high school scholar who is not fitting for college should conclude his course by reviewing arithmetic, including all business forms, in the light of all the algebra and geometry he has learned, his geography by the aid of his physics and chemistry, his history of the United States illuminated by all his acquirements in general history and civil polity, and his English grammar and literature in comparison with all other grammars and literatures he has any knowledge of, he would have a little real knowledge—a taste of the joys of mastery.

Thus reflecting upon the common branches which are so vitally bound up with the common concerns and interests of men the light of all the higher knowledge which scholarship can acquire, we shall brighten and clothe with a new attractiveness the labors in which the great majority must spend their lives—

Blessing toil, where toil abounds, with graces more abounding.

The second special case is that of those who, justly dissatisfied with the apparent tendency of the schools to create a distaste for labor, propose to incorporate handicraft in the curriculum.

This measure does not proceed from a just comprehension of the nature of the evil it aims to cure, and will not be successful.

It is sheer weakness to lay to the charge of any school the unwise discontent with plain living, the haste to be rich, the foolish rivalries, and the general desire to secure a livelihood without working for it which are as old as civilization and apparently inseparable from it.

Boys and girls always have sought to win the easier and more agreeable employments. They always will do this. The irreverence of youth, enhanced as it is by the relaxation of family discipline, and their impatience with the slow and toilsome beginnings of all solidly built lives, need to be restrained by patiently showing and illustrating and enforcing the more excellent way of obedience, industry, and method; but it is not a ground for sudden and novel changes in school systems. It is aggravated by the monstrous defects in home training and by the pollution of the atmosphere with filthy literature, but it is somewhat corrected and relieved by the regular sober discipline of the public school. For the only hope of success in this world lies in obedience to law; the only preventive of idleness is a habit of industry founded on an obedient spirit. Otherwise, skill in handicraft is no security against thriftlessness or vice. Every one who is at all familiar with large manufactories knows that one of the constant drawbacks is this: many skilful men, upon whom at critical moments everything depends, are liable to be overcome by appetite, and waste in idleness time which is more precious to employers than to them.

The real practical question is, whether the youth who seek the avenues of trade shall be intelligent and thoughtful citizens, able to bear adversity with courage and prosperity without exultation, or brawling grumblers in hard times and foolish dreamers in good.

Again it is urged that youth would be allured to the mechanic arts by daily familiarity with them in the school room, and those endowed with aptitude for handicraft would be detected by the test and assigned each to his proper calling. This result, if attained, would only prove a good so far as skilled workmen were evoked by it; for there is already a great excess of unskilled labor. But why create new attractions when the old are great and mighty? What assemblage of mechanical processes could be made in any building to affect the imagination or wake a slumbering aptitude which could compete with the exhibition which every town presents? The air is lurid with the smoke of countless furnaces; every stream is worried with dams; the din of machinery on the grandest scale sounds an incessant call; thousands of workmen go as daily messengers between the shop and home, and make familiar in daily speech the marvels of mechanical achievements. No sober and inquisitive youth is denied access to mechanism of unbounded variety

and interest. This spectacle is not limited to a few hours of a crowded school day; night and day are filled alike with its wonders.

Libraries abound in biographies of the great inventors, and every thoughtful boy can feed his imagination with the achievements of Arkwright, Whitney, and Bigelow. This is the real developing school. This face to face communion with men of like sympathies and passions excites the growing boy more than lathes and engines and spindles. In the peaceful fields of mechanical triumphs, not less than on Marathon, the trophies of Miltiades will not permit a single young hero to slumber.

The ranks of skilled labor in ordinary times are never crowded; but a reasonable man will pause before urging a scheme which must end in increasing the number and diminishing the intellectual resources of unskilled mechanics.

Consider again that this demand for a class restriction in public education does not spring from mechanics and manufacturers, but mainly from those who have been able to command whatever education they desired, and it is very much to be feared that the gentlemen who urge this plea of overeducation, and propose manual training as a cure for it, are, perhaps, unconsciously cherishing the illusion of class education in a republican state, and must be challenged to answer Madison's question, "Why should we, here, in the realm of knowledge or in the public provision for the education of all, divide society into classes upon the ever vanishing line of rich and poor?"

And consider that mere manual training will not suffice. It must be allied to machinery to be effective, and the teachers of our public schools will presently find themselves superintendents of machine shops; otherwise the graduate of the school is in danger of turning out a tinker. If you still claim a disciplinary value for the proposed manual training, this will not be denied. Neither will any one claim that every hour spent in school workshops is so much actually subtracted from the result of school training. But it is not, on the other hand, so much added; and it is incumbent upon the reformer to show what the actual gain to society is through handicraft to balance the necessary loss in intellectual training. The average pupil of the public schools now receives, at the public charge, 166 weeks' instruction of 30 hours each, or about 3 years. Is this too much?

This has not been shown, and I do not think it can be. If it be demanded that the public school should cultivate and enforce habits of industry, self restraint, personal independence, and regard for others' rights, or if it be claimed that the public school can be improved, no one will demur. Great improvements are making, and more can be made; but it is one thing to relieve the difficulties of a good and useful institution and another to aggravate those difficulties by increasing, without improving, the labors imposed upon it.

(1) The general intelligence which springs from the State school is as indispensable to a good market for the products of our manufacturing

skill as it is to that skill itself. We export cheap prints only to the ignorant populations of Africa and the South Seas; but only the finest products of our most skilful workmanship can enter England and the continent of Europe. The home market is equally sensitive; and if we want to sell what our skill produces, we must not paralyze the market.

(2) The amount of school time cannot be much increased. Whatever is taken from it for handicraft would be subtracted from the effectiveness of the school in other directions; and the actual amount of instruction which the average child of the working classes receives has already been shown to be too small rather than too great. By introducing handicraft, supposing it feasible on other grounds, we should do a great wrong to the average scholar and a great injury to handicraft. And consider how trifling at best is the amount of real craft a boy could get in a State school. It would vanish like the frosty coating on the iron which, in a winter morning, he carries to his forge. Knowledge of tools he can easily get in his shop after his school is past, and all the easier for a sound school training. But how, or where, or when shall he repair his loss of the things the school should teach him? These precious hours once gone are gone forever.

It is better, then, to pour all possible vigor, intelligence, and hope into the nerve of the arm which is to smite the anvil than to clothe that arm with any momentary gloss of unserviceable dexterity.

(3) The atmosphere of the school-house is unfavorable to handicraft. The sort of workmen and the sort of work by which an artisan is surrounded during his period of training have even a larger share in determining the quality of his skill than the environment of a school in the formation of character. Workmen trained in any well known shop bear the unique inscription of that shop almost as plainly as the fabrics whose excellence gives at once its reputation to the shop and special value to the services of the men. Workmen not infrequently deteriorate when transferred from a better to a poorer shop. The environment of handicraft is a matter of vital importance.

Again, it is essential to success in teaching the industrial arts blended with intellectual training in a school course that the two should be started and carried on with harmony and equal prominence. The school must have but one end, and towards that all its forces must move. Nothing can form any part of the school which does not share its common life and partake of its common advantages. The parts of a good school are like the parallel bars of a compensating pendulum, the contraction of one balancing the expansion of another to give the exactly measured swing of perfect synchronism.

Only a small part of the pupils, under the most favorable circumstances, would take this practice of choice; and it could not be enforced upon all on any principle of equity. No Carthusian vow can be imposed upon the youth of the public school. The result must be the appearance in the school of a caste, which would be instantly fatal.

All manual training in the use of tools given in this unnatural atmosphere would be feeble and ineffective. The inadequacy of the scheme would be detected more quickly by the pupils than by supervisors, and would engender disorder and discontent.

Neither philosophy nor the common sense of the people decides that manual training is necessary for all pupils or essential to the public welfare; therefore the people cannot justly be taxed for the direct support of institutions which benefit only a class.

The first method applies in practice only to reformatory institutions. Beyond that, the state may and should foster by grants all useful institutions, and directly support through annual taxation only those which are essential to its perpetuity and which could not safely be left to private management. These latter are the public schools; and, while the exact line between essentials and non-essentials in public education has not been clearly drawn, yet the term "public schools" is sufficiently clear and distinct for all practical purposes.

We reach the conclusion, then, that the union of handicraft and school must be committed to special schools of technology, founded by private munificence and directed by permanent boards of management.

(4) Time forbids me from enlarging upon the waste of energy caused by inadequate libraries. This want grows less severe each year. Indeed the growth of the free public library as a means of utilizing the intelligence which the schools create is one of the features of our times.

(5) But all that has been said prepares the way for urging as the last form of waste the inadequacy of the preparation of teachers for their work and of proper supervision. The teacher is, after all, the school, and the school the teacher. Without this force all other allied forces slumber like the chemic forces of the plant till quickened by the light. Great attention is given, and too much cannot be given, to the professional education, selection, and supervision of teachers.

But it has already occurred to some that the force of the teacher is not all commuted into knowledge, but that a large part is spent in enthusiasm—the affiance of light and heat. A good teacher can no more fail of enthusiasm than the sun can shine without heat. But the heat of enthusiasm is not to be disjoined from the light of knowledge.

"The public schools are the people's universities," it is said, and we must give them a taste of everything that anybody knows. But the people have a right to knowledge and will not be denied it, and the people will in the end hold those to strict account who, charged with the solemn duty of providing what is best, took counsel of expediency or of fear. The people expect educators to recommend such measures as philosophy dictates, experience approves, and common sense supports.

After the reading of this paper the chairman gave an opportunity to any who might desire to discuss either this subject or the subject of the morning.

Superintendent JONES, of Erie, Pa., thought that the Military Academy at West Point, though a school supported at public expense, had two or three advantages over most public schools: it could compel its pupils to take its course of instruction entire; it dealt with healthy pupils only; and it could eliminate the stupid or vicious from among them; whereas public schools are obliged to instruct children, healthy or sickly, bright or stupid.

School Commissioner KING, of Richmond Co., N. Y., thought that West Point could be abolished and that just as high a grade of officers would come up, and that, too, from the public schools. There should be more competition among line officers. In his opinion if the positions in the Army were thrown open the public schools would furnish officers as good or better than now come from West Point.

Mr. NORTHPROP said that America had received a full equivalent for every penny expended on West Point, and the idea that any public school could take its place was preposterous and absurd.

J. G. MURPHY, of Fishkill, N. Y., advocated the use of the perceptive faculties. He said that all children should not be treated in the same way; that a school of thirty pupils would have from three to seven different classes of capacity.

Dr. THOMPSON explained that he presented West Point as an institution to be imitated by the public schools from the fact that it had done thoroughly and well the work it had undertaken. Students entered West Point at about the same age that they enter the high school, but much more is accomplished at West Point. Teachers who desire to accumulate teaching force he thought would do well to study West Point.

After a recess of five minutes Dr. FRANKLIN B. HOUGH, chief of the forestry division, Department of Agriculture, Washington, D. C., read the following paper:

OUR SCHOOLS AND OUR FORESTS.

In presenting a subject with this title, the question might be asked by some, "What possible connection can be traced between our schools of learning and the woodlands of the country?"

The Germans term a nursery of young trees a *Baumschule*, a "tree school," and nobody will deny the strong analogy that exists between the early direction imparted to the young scholar in our schools and the young seedling of the nursery bed, both alike receiving in the tender and susceptible period of life's beginning certain tendencies that influence all that follows to the end. This analogy was forcibly expressed by Pope in the familiar lines:

'Tis education forms the common mind,
Just as the twig is bent the tree's inclined;

and imaginative writers have in all ages and in every language found apt opportunities for illustrating the various phases and vicissitudes of

human life by what may be learned from a tree. But dropping these fanciful analogies, which the active mind may follow to infinite extent, we will at once enter upon the more serious consideration of a subject that is beginning to attract the notice of thoughtful men, viz, the rapid diminution of our forest supplies and the means by which the wants of a near future must be supplied.

We assume that no one will deny as facts that the woodlands of this country are being cut down and used or are suffering from waste in a much greater degree than they are being restored by natural growth; that the maintenance of a due proportion of forests is highly important, in fact indispensable to our wants, and that this limit has in many sections of the country been already reached and passed.

We think no one will deny that the clearing off of woodlands causes the springs and streams of a country to diminish and often disappear in summer; that the channels of mountain streams become eroded by torrents when the forest protection is removed; that streams once perennial and nearly uniform become liable to great alterations in volume and to sudden overflow in heavy rains; that the supply of water for cities, for hydraulic power, and for navigation becomes irregular and deficient at seasons of the year when most needed, and that our fields, unshaded from the sun and unsheltered from drying winds, become liable to destructive droughts.

But, besides these secondary effects, we should especially notice the growing scarcity of wood and timber as a material for use and an article of commerce in regions where it was once abundant, and the effect of this upon their prices, which are constantly tending to further increase as these supplies become less.

In view of these facts let us at once proceed to inquire as to the duties of our schools in reference to our forests. This question of forest supplies has for a long period engaged the attention of governments older than ours, and we should be able to profit from their experience, applying such modifications as differences in government and circumstances may suggest in order to adapt them to our own peculiar wants.

We find in Europe that in every principal country upon the continent the woodlands belonging to the government and to local municipalities and public institutions are under the care of a special branch of administration, which not only looks after their management to prevent injury or waste, but has for its especial duty to secure the restoration of forests when cut at full maturity or at appointed times, and this by means which shall most effectually secure the greatest possible benefit that the conditions allow. This management implies the necessity of a well organized corps of agents specially educated to the duties of their profession, and for this preparation there have been established schools of forestry in every country that has a forest administration, and these schools have been provided with full appliances for rendering their operation complete. At these schools of forestry every branch of science that finds applica-

tion in the cultivation and care of woodlands is taught and illustrated by excursions and practical labors in the nurseries and forests connected with the establishment. The attainments of the student are tested upon entering and at leaving, as well as at various stages of his progress, and at the end of his prescribed course he is ready to enter the forest service upon a subordinate grade, from which he may rise by successive steps to more important stations. Finally, having spent his working years in the service, he is entitled to retirement upon a pension; and, if his career has been one of especial merit, honors and distinction are awarded him.

As the course of instruction in these schools is strictly technical, the range of studies extends no further than to include the sciences that concern the forester's profession, including the legislation and jurisprudence of the forest code, the details of official business, and a knowledge of his duties in the transactions that may come before him in the various stations which he may be called upon to hold. The course varies somewhat in different countries, owing to differences in their forest laws, but it is substantially the same so far as depends upon mathematical principles and upon the natural and physical sciences that are taught.

To illustrate the range and extent of the course, we will present a list of the professorships and of the studies taught by each in the Forest Academy at Tharand, in Saxony, one of the oldest in Europe, and therefore one in which we may expect to find the fruits of long experience embodied in the course of instruction now in use.

This school was begun at Zillbach in 1786, was more formally established in 1795, was removed to Tharand in 1811, became a public institution in 1816, and from 1830 to 1870 was a school of agriculture and forestry combined. For the last ten years it has been a school of forestry only, and has an attendance of from fifty to seventy students, almost one-half of whom are foreigners attracted thither by the excellence of opportunities and ambitious to qualify themselves for the position of foresters to large estates or for employment in the forest service, now becoming more common under colonial governments. There is as yet no school of forestry in Great Britain, but much attention is now being given to the conservation of forests in India and other remote British colonies, and the agents aspiring to these appointments must resort to these special schools upon the Continent, whereof Tharand gets a considerable share.

The academy is under the ministry of finance, and its course of instruction extends through two years and a half. The student must show upon entering, besides certain qualifications as to age, means of maintenance, &c., the attainments implied in a full course of study at a Gymnasium or a Realschule, and if he aspires to the Saxon service he must have worked half a year under approved instruction in a forest.

The course is divided among ten instructors, as follows: (1) the director,

who teaches the history and literature of forestry, forest regulation and improvement and police, and leads in certain excursions and practical exercises; (2) a professor of arithmetic, algebra, and geometry, and their applications to forest work and mechanics, accompanied with mathematical exercises; (3) a professor of chemistry and chemical technology, agricultural chemistry, and laboratory work; (4) a professor of physics, mineralogy, and geology, who leads excursions in the application of these studies; (5) a professor of forest cultivation, protection, and administration, hunting, and forest taxation, with practical excursions and exercises; (6) a professor of general and forestal botany and vegetable physiology and microscopy, with exercises and excursions in natural history; (7) a professor of surveying, road making, draining, the calculus, &c., with excursions in surveying and measuring; (8) a professor of general forest industries, forest finances, and an encyclopedic view of agriculture, pasturage, &c.; (9) a professor of zoölogy, and especially of entomology; and (10) a professor of law and forest jurisprudence.

There are connected with the academy a large library, an extensive and valuable cabinet, a forest garden, and a forest district in which all the practical details of regulation and management are going on and with which the student must become personally familiar.

At the French school of forestry, at Nancy, the student must learn something of military discipline and regulations, and in the Russian schools of forestry the military organization is carried still further and pervades the whole forest service.

At Eberswalde, in Prussia, one of the best of forest academies, 2,648 hours are given to instruction, extending through two years and a half, or a little less than five hours a day, of which 840 (about 32 per cent.) are given to the natural sciences, 440 (about 16 per cent.) to mathematics, 980 (about 36 per cent.) to the economical sciences, 180 (about 6 per cent.) to jurisprudence, and 340 (a little over 10 per cent.) to exercises and excursions.

The following is proximately a list of the schools of forestry now existing in Europe:

(1) *Schools of forestry alone.*—In Prussia, one at Eberswalde and one at Münden. In Saxony, one at Tharand. In Saxe-Weimar, one at Eisenach. In Austria, secondary schools at Weisswasser in Bohemia, at Eulenburg in Moravia, and at Lemberg in Galicia; lower schools at Aggsbach in Lower Austria, at Wildalpen in Styria, and at Kreutz in Croatia. In France, one at Nancy and a School of Forest Guards at Bayas. In Italy, one at Vallombrosa. In Spain, one at San Lorenzo del Escorial, near Madrid. In Russia, one at Evois, Finland. In Sweden, one at Stockholm.

(2) *Forest departments in universities and polytechnic schools.*—In Bavaria, at Munich (lately a separate forest academy at Aschaffenburg, which is still in part retained); in Hesse-Darmstadt, at Giessen; in

Baden, at Carlsruhe; in Brunswick, at the Polytechnic Institution; in Switzerland, at Zürich.

(3) *Academies of agriculture and forestry*.—In Austria, at the special high school, at Vienna; in Württemberg, at Hohenheim, with a special course at the university in Tübingen for those aspiring to a place in the administration; in Russia, one near Moscow, one at St. Petersburg, and one at New Alexandria in Poland, with a special school of applied forest industries at Lissano; in Portugal, near Lisbon; in Denmark, at Copenhagen.

(4) *Academies of mining and forestry*.—In Austria-Hungary, one at Schemnitz. Besides these special institutions, about thirty in number, at which the profession of forestry is made a particular object of instruction, there are a multitude of others in which the importance of the subject is recognized and more or less provision is made. Thus, at three of the agricultural schools in France, an agent of the forest administration is detailed for this instruction, precisely as our own Government details officers from the Army for giving military instruction in some of our colleges. There are at least seven schools in Sweden at which a course of one year in forestry is taught, and ten years ago there were thirteen elementary schools of forestry in that country.

A few years after the Crimean war the Turkish government undertook to establish a school of forestry at Constantinople, and one has been founded recently in India, for the purpose of fitting the agents of the government for an intelligent performance of their duties.

Such being the provision made in other countries for supplying an educational want in their public economy, of which they had felt the need and without which they would have suffered an injury, let us next consider how our circumstances compare with theirs and what are our duties in view of the prospect before us.

As for our wants: If we take into estimate the prairies and the plains, as well as the immense clearings in the older States, we shall find, probably, in the whole country, a relatively smaller percentage of woodlands available for us than that of either France or Germany, where the organization of the forest service is the oldest and most complete, and in some of our newer States and Territories relatively much less than the most poorly supplied country in Europe. It is true that our native supplies are very unequally distributed, and that in some regions they are largely in excess of the present local want. In other sections of the country the timber is at present altogether inaccessible by any existing means of transportation, and in others it is so remote that the expense of freight cannot be borne until the present market prices have greatly advanced, and it will be a sad day for those concerned in the wood industries, and for their patrons, when the time shall come that it will be necessary to bring lumber and timber from these distant points.

As already remarked at the beginning of this paper, the use and waste of forest products far exceed the growth, and this disparity is every

year increasing as new demands arise for local use or new markets are opened for exportation. It is therefore among the plainest of certainties that our people must in the near future feel the inconvenience of greatly enhanced prices and among the strongest of probabilities that they will then begin to realize the profits from the growing of timbers. To do this to advantage they will need a certain kind of education that our schools do not now provide, for, although there may doubtless be hereafter a great deal of empirical planting, just as there is of farming, without the planter being able to assign a better reason for his methods than that his neighbors do likewise or that his father did so before him, it is now too late to deny, and it is quite needless to prove, that in tree planting as in every other pursuit in business the man of best education attains the greatest success.

It is within the knowledge of every one that our native forests present great diversity in their timber growth. In one locality we find the maple or the oak; in another, the ash or the elm; in another, the hemlock, or the pine, the chestnut, the cypress, or the walnut, as the prevailing kind; and this difference will always be found due to the favoring conditions of soil or of subsoil, of subjacent rock foundation, of humidity or dryness, or of elevation or aspect that suit the wants of these particular kinds. It may often happen that a species from another region or country may prove even more thrifty and profitable than any that are found growing in a native state, and in planting a prairie region where no timber has grown, at least within the period of our memories or traditions, it is of the very highest importance that these capabilities and preferences be well understood beforehand. If we commit an error in the sowing of a farm crop the failure will not extend beyond the first year, and the farmer deserves no sympathy who will repeat his error in the next. But timber trees are at best of but slow growth, and a lifetime might be lost in waiting to see the unprofitable growth of a tree ill adapted to its place, while a more intelligent choice and management would have brought a revenue to the planter. But what is our need from an educational standpoint and what is demanded of our schools in the interest of the forests? Will any of the foreign systems apply to our wants, or, if not, what modifications do we need to meet the requirements in prospect? Let us see how the circumstances differ.

In every foreign country where systems of forest management exist there are large areas of woodlands belonging to the government and to communes or other local municipalities and to public institutions.

The inhabitants of communes often enjoy rights of common usage, either in the way of fuel and building material, or in the gathering of seeds and fruits or of fresh leaves for feeding or fallen leaves for bedding their stock, or rights of pasturage, or some other privilege which has been secured to them by statute or confirmed by customs stronger than law. The management of common rights presents some of the most difficult problems with which the European forester has to deal. It

forms a branch of special instruction in the schools of forestry, and it often becomes so serious a bar to improvement that these privileges must be bought off, commuted, or exchanged for some equivalent benefit before a reform can be secured.

In many European forests certain kinds of game are reserved for the enjoyment of a privileged class, and their care and protection come within the forester's duties and form a part of his education, even where their presence works an injury to the growth of the timber he is bound to cherish and proves a scourge to the neighboring farmer, who is forbidden under heavy penalties to injure the animals that may be destroying his crops and, it may be, further forbidden to fence his fields if it should hinder pursuit by those who may join in the chase.

In some instances the government in former times reserved the first choice of timber for its navy, and might even take what it needed where most convenient, not sparing the lawn tree or the avenue planted by ancestors, if the caprice or the convenience of officials so decided, and there are still some rights of preference and some restraints upon private usage that may prove burdensome to the landholder. Finally, there are tenures and limitations upon the title to lands that may embarrass or wholly prevent an industry that brings only a remote benefit; as no tenant would ever plant a tree that could only be cut after his lease had expired or make any other improvement that he could never enjoy. Now, our circumstances as regards the ownership and tenure of the land are as follows:

The National Government has indeed some valuable tracts of timber land which it should lose no time in putting under a management tending to secure the greatest benefit to the present and the future; but our States own no land (except as granted for special objects) and it has hitherto been the policy of both the general and the State governments to transfer their lands to the actual settlers as soon as possible. In fact, all the land in the older States and much of it in the newer States and Territories has already become private property under titles that are absolute and unconditional. Fortunately we have no rights of common usage in our woodlands, no rights of preference in their timber, no privileged classes having rights of chase upon the lands of vassals, no game but such as the owner of the land may choose to own or allow, and no hunting but such as he may permit or forbid. Our schools will therefore never have occasion to teach a forest code or the jurisprudence that may arise under it. They need pay no attention to game except as the state may enact laws for its protection in the interest of agriculture or for other common benefit; and until a time shall come when our forests reserved for the supply of the timber market are owned by great corporations, having the stability and capital that give assurance of permanence, there will be no great opportunities for applying plans of *aménagement*¹ that shall govern the future working of a young forest

¹ Technically used in France for the legally regulated cutting of forests.

upon a private estate, until it comes to full maturity, for the use of generations unborn.

The graduate of a European school of forestry would scarcely find use for the education he had acquired beyond his training in the physical and natural sciences and in mathematics were he placed in the most responsible trust that our forest owners could offer; but in these branches the general principles are alike the world over, however codes may vary, and his success with us, as elsewhere, would be in direct proportion as he had learned to apply these principles to the conditions he might find and to appreciate the modifications in management that new circumstances might require.

The education that our country requires in the interest of forestry (and which, from present prospects, our schools will ere long be called upon to supply) will not, in our opinion, be so much of a thorough and exhaustive kind for the special benefit of a few as of a more general and elementary character that shall come within the reach of many. We need first and most of all, not simply in our schools, but throughout our whole country and especially among the rural and agricultural classes, the diffusion of the simplest principles of political economy that teach the importance of our woodlands to the general welfare and the need of the material that they furnish for the supply of our indispensable wants in life—a due appreciation of the incidental benefits which our woodlands secure to agriculture and to the sanitary and industrial interests that depend upon an adequate and duly equalized water supply.

These utilitarian ideas are not in the least degree inconsistent with a due appreciation of the beauties of woodland scenery and the full enjoyment of all that is lovely in rural landscapes and forest shade. The forester looks with pride and pleasure upon the tree or the grove that his hand has planted, and as he watches its growth from year to year he cannot fail to acquire an attachment for the scenes and solitudes of a woodland life.

To realize how much of the imagery of the poets and of beauty in landscape painting depends upon sylvan scenery and rural associations, we need but imagine how blank and dreary would poetry and painting be without them. Whatever tends to cultivate and extend this appreciation of the beautiful in nature is so far in direct advancement of forestry, and it may be proper to here consider some of the means by which this may be done. We know in every phase of life, in every pursuit of business or of pleasure, in every usage of society, how much mankind are influenced by the example of others. In some things we call this tendency to imitation a fashion and in others a custom, and in neither case can any better reason be assigned for the imitation than that it is the practice of others.

We have an interesting example of a widespread and lasting custom of tree planting in English history. There is at present no country in

the world where there is such an abundance of trees planted for ornament as in England. The well kept parks and landscape views presented upon the estates of the nobility and the landed gentry are the pride of their owners and the admiration of travellers. This taste for rural ornament is largely due to the efforts of Sir John Evelyn more than two hundred years ago. This writer was an especial favorite at the court of Charles the Second and, as remarked by a subsequent editor of his writings, "from an early entrance into public life to an extreme old age he considered himself as living only for the benefit of mankind." His best known work, entitled "*Sylva: A Discourse of Forest Trees*," acquired great popularity, as shown from the large and frequent editions that appeared during the author's life, and the permanence of this interest is further proved by the many later editions which have since been issued, almost down to the present time. Under the impulse and advice of Evelyn, the king and the nobility of that day began extensive improvements in planting their estates, and the example thus set became a widespread fashion among landed proprietors throughout the kingdom, which has continued down to the present time. We have evidence of this immediate and effectual impression made by the writings of Evelyn in a dedication to Charles II prefixed to one of the later editions that appeared during the author's life, in which he says: "I need not acquaint Your Majesty how many millions of timber trees, besides infinite others, have been planted and propagated throughout your vast domains at the instigation and by the sole direction of this work, because Your Majesty has been pleased to own it publicly for my encouragement;"¹ and no more striking or beautiful tribute could be paid by a man of genius to one who had worked so lovingly for the good of his fellow man than was that by the elder Disraeli in his *Curiosities of Literature*, in which he says: "And surely while Britain retains her awful situation among the nations of Europe, the *Sylva* of Evelyn will endure with her triumphant oaks. It was a retired philosopher who aroused the genius of a nation, and who, casting a prophetic eye towards the age in which we live, contributed to secure our sovereignty of the seas. The present navy of Great Britain has been constructed with the oaks which the genius of Evelyn planted." There is something, indeed, in a noble park that betokens stability and opulence in the owner, and there can be nothing more flattering to family pride than to point out a grand avenue of majestic trees that an ancestor planted. We need not travel far nor seek long for illustrations of this feeling in our own country, for a man can scarcely plant a tree upon his homestead lawn without ever afterwards looking upon its growth in size and beauty with satisfaction. If an accident happens to it he willingly spends much more than its simple value, if within the possibility of remedy; or if maliciously injured he will resent it as if it were a personal injury.

¹ Disraeli's *Curiosities of Literature*, vol. II, p. 326 (New York, 1871).

It has sometimes been a custom to plant a tree to commemorate an event. It may record the nativity of a child in a family, or the visit of an illustrious guest, or some memorable event in history. Thus in the ancient Dutch city of Albany there are now great trees in the streets coeval with a present or a former inmate of the dwelling opposite and an aged elm that was planted to commemorate the arrival of General Burgoyne as a prisoner of war soon after the surrender of Saratoga. Throughout the length and breadth of our country we have trees planted during the Centennial year; and whenever a historical event is connected with a tree the tree becomes ever after an object of interest while it lives. The Royal Oaks that sheltered Charles the Second, the Charter Oak of Hartford, and the Treaty Tree in Philadelphia were monuments while they lasted and were cherished as relics when they fell. Of similar but more local interest are the class trees on our college grounds and the trees planted on special occasions to commemorate interesting local events.

The promotion of a taste for rural adornment and ornamental planting being an object worthy of our earnest effort, as well from the æsthetic culture and refined enjoyment they secure as from the favorable influence that they exert upon plantations for utility, let us inquire as to the means by which this object of manifold advantages may be best secured.

In our cities and large towns public parks are now very generally recognized as important agencies for the hygienic welfare and personal enjoyment of their inhabitants. The responsibility as to their management is naturally vested in the municipal government, and should be in charge of a special commission, upon whose intelligence and efficiency their success depends. The influence of public parks upon the general welfare should be more fully appreciated, and there are many cities of large and dense population where these improvements have not yet begun. In others, where a beginning has already been made, the need and opportunity of a barren waste, a river bank, a shore, an island, or a point of land within or adjacent to the city limits has not yet been noticed, where a moderate expense might secure a little paradise of beauty and an inviting place of rest. The grounds around public institutions, in rural cemeteries and the like, might often be made more agreeable to the eye if the opportunity for improvement were pointed out and sufficient means allowed. The interest in city parks might often be greatly increased by greater variety of species and by correct labels of their names.

In villages we find greater opportunities for individual action and abundant advantages from a concert of effort which it is the special province of village improvement societies to secure. I am well aware that others present have given much attention to this class of associations, in which the efforts are sometimes not limited to the material welfare of their localities but extend to intellectual improvement and refinement

in social life. They deserve our highest commendation and support, and the educational bearings of these efforts are too obvious to require special notice.

The example of one village becomes the pattern of another; and should emulation arise between neighboring villages, we would not have it checked until each has outdone the other in rural adornment.

From large villages the example tends to imitation in the smaller ones, where, although the means may be less, the opportunities of space may be relatively greater, and from these to private homesteads throughout the land. Although the intellectual and social refinement arising from these customs deserves first mention among their advantages, we may notice that they tend to enhance the value of the property that they adorn. They render a village more desirable for residence and invite the notice of those who, having earned a competence in the cities, are seeking to retire to the quiet shades of rural life, that still present attractions for intellectual enjoyment and the amenities of a refined neighborhood. The farmer who would wish to enhance the market value of his land could not invest more profitably than in trees; and it will be fortunate if he early learns the useful fact that there are corners and waste places in abundance, now unproductive and unfit for other cultivation, that present the most favorable conditions for the growth of forest trees.

The man who has cleared a farm out of the forest seldom or never plants a tree. He has come, from long custom, to look upon trees as an incumbrance to be removed; and whenever his home presents a noticeable amount of sylvan shade it is more likely to be the work of a younger generation, who have no sympathy with his aversion and a better idea of the comforts of home life. Americans have been reproached for having but slight attachment to the homes of their childhood; and this willingness to sell to a stranger the land that a parent has cleared and cultivated, and on which their own early years have been spent, has been ascribed to a certain instability of character and an uneasy desire for change.

There is doubtless a strong affinity between a love of home and of country, and it is true that an attachment to a homestead because of ancestral possession and family associations would greatly tend to increase our national prosperity and happiness. It would lead to substantial investments for permanence and future enjoyment that the transient and speculative owner would never make, and it would tend to the more solid foundation of our public institutions generally. The man who settles temporarily for business and expects to depart when he becomes rich, spends no money upon public libraries and cares nothing for the charitable and educational establishments of the place, provided they do not burden him while he remains. His influence will generally be adverse if these objects require expenses that bring no return during his stay, and he will prefer temporary expedients to per-

manent investments if they but serve to bridge over the time of his sojourn. The solid and substantial foundation of our institutions is laid by those having a permanent interest in the prosperity of the places where they are located. It is this class alone that erects monuments and that leaves evidences that its members have lived for the welfare of those who are to come after them.

It is a point worthy of inquiry as to whether much of this indifference to the home of childhood and to the possessions of ancestors with which Americans have been charged is not due to their bleak and cheerless surroundings.

We cannot doubt that the influence of a pleasant rural homestead and the choice memories of refined associations in early youth are as capable of making as strong an impression upon our native population as in any country whatever, and although in the absence of laws of entail and under the impulse of adventure or motives of interest or the force of circumstances a change of ownership may often happen and the choice and cherished homestead become the property of a stranger, still the chances become less as the attractions are greater, and a motive worthy of earnest and honorable effort is presented in favor of maintenance in the family line.

From this form of education by example, tending to promote a taste for rural planting and the enjoyment of rural scenery, which cannot fail to promote a more general plantation for utility, let us next consider the direct educational appliances that should be supplied in our institutions of learning.

Commencing with our colleges, we almost uniformly find, except in large cities, that they have sufficient land around them to justify a certain amount of planting and often facilities for a first class arboretum. Instead of the plantation of one or a few species, it would be better to group together, in their natural relations, as great a variety of species as the soil and climate would favor—thus affording a ready illustration for comparative study and the means for becoming practically familiar with the characteristic features of each. Of course each species should be correctly labelled with the scientific as well as the popular name and it would be still better if the synonymes and the names in the more important foreign languages could be known. This object lesson would still be but imperfectly learned, unless the student were required to know the leading facts concerning the native region, geographical range, uses, and best methods of propagation of each species under observation; and he should be able to point out the characteristic features of each. Our agricultural colleges should be required and the best endowed of our colleges should be induced to establish nurseries for the propagation of trees and for experimental study, and cabinets of wood specimens and wood products, with illustrations of the foliage, the fruit, &c., should be provided.

In teaching the sciences of geology, chemistry, botany, zoölogy in its

various branches, and climatology, their relations to forestry should be clearly defined and their application shown. We have already noticed the prominence that is given in European schools of forestry to practical exercises and excursions under the guidance of teachers, with the view of rendering the student thoroughly familiar with the subject of his studies and qualified to judge and act intelligently when thrown upon his own resources in after life. There can be nothing more rational or effectual in education than this, and in nothing in the whole plan of our system of education has there hitherto been so much neglect. No person should deem himself qualified to teach a science that he cannot illustrate in its applications as they appear in nature or are employed in the industries; and we would most earnestly commend this point to your thoughtful consideration as a deficiency in our system of education that should be supplied. We are aware that chemistry, engineering, and to some extent the natural sciences are thus practically taught, but we would have the method extended to far greater degree than has yet been attempted. Finally, our college classes, before graduation, should enjoy the privilege of some instruction, if only in a course of a dozen lectures, in which the general subject of forestry should be presented. These lectures might include a brief historical outline of the subject; a notice of the codes of administration in various foreign countries; their methods of management in the ordinary course of forest culture and under exceptionally difficult conditions, as for example upon mountains eroded by torrents or upon drifting sands; the various modes of extraction and transportation; forest police; the prevention and control of fires; the means employed for limiting insect ravages and other injuries; the usages of commerce; the economies that apply, and the question of supply and demand.

In this outline of what might be taught in our colleges, excepting the labelled collections of living trees and cabinets and excepting the special lectures upon forestry, I have suggested nothing but what our existing organizations ought to be able to supply, and this without materially adding to the duties already assigned. The application might require some preparation on the part of instructors to familiarize themselves with these duties and some modification in our text books, or, what would be better, a manual specially adapted to this subject that does not as yet exist in our language, but which could be readily supplied.

Descending from our colleges to the academies, a modified form of the course above sketched might be conveniently applied. The labelled plantations of living trees and the cabinets would still find an appropriate place, and in the studies above enumerated, to the extent that they are taught, the applications to forestry might, with equal advantage, be made practically familiar from fresh specimens in the classroom and by occasional excursions in the groves. There is no more profitable mode for cultivating a habit of observation than by requiring the student

to discover and describe the differences that exist between objects that have a general resemblance but which are still unlike. For example, if branches from two species of the maple or the birch, the oak or the walnut, were assigned as a study, the mental effort involved in the exercise would lead the close observer to notice differences in the leaves, the buds, the bark, and the wood that he had never recognized before, however familiar these objects may have been, and the habit of close observation thus called into exercise may prove of infinite service through after life. The formation of private collections in forest botany and forest products might often be encouraged among the students of our academies to great advantage, requiring them at the same time to learn by their own inquiry and research, from whatever source of information they can devise, as much as may be concerning their properties, their value, and their uses. A relish for rural adornment can be in no way so effectually inspired as by example, and if some leisure hours are spent in planting and cultivating trees the knowledge may prove of great service in after life.

From the academies we pass to our public schools, where the extent of instruction must be modified to suit the more elementary course of studies that are taught. In the great cities the opportunities are few, and perhaps little can be done beyond familiarizing the scholar with the subject by cabinet specimens, engraved illustrations, and such instruction as may be incidentally given in the text books used; but in the rural districts the earnest and faithful teacher has abundant opportunities for inspiring a love of nature and of natural scenery, and there should be no school-house without its little plantation around it, which the inmates are taught to cherish and protect. The pupils may be encouraged to undertake the cultivation of ornamental shrubs rather as a privilege than as an obligation, and many impressions alike pleasant and profitable may be planted in the scholar's mind, that, like seed in good soil, may perchance germinate and bear fruit in after years.

As an illustration of the means by which the common schools may be made the agency of imparting correct ideas upon an important subject in rural economy, I will mention the measures adopted in recent years by the French government for the protection of insectivorous birds through the agency of their schools. Wishing to learn how this was done, I applied, some time since, to M. Waddington, then minister of education, who sent with his reply a series of circulars and documents having reference to the subject before us. In his instructions to the prefects of departments, after noticing the injuries caused to agriculture by noxious insects, which have increased to a truly alarming extent in recent years, he says:

The ministers of agriculture and of the interior have called my attention to these sad conditions, of which the principal cause is the disappearance or at least great reduction in the number of insectivorous birds. These birds are the natural guardians of our harvests and the most precious auxiliaries of the farmer; yet they are everywhere

treated as enemies. The cultivator, forgetting the constant services that they render him, sees only the little faults they commit; children pursue them to destruction; they are caught in nets; their nests are broken up; and these useful friends which strangers come to buy for acclimation in foreign lands are gradually disappearing from our fields. Various circulars already have been addressed to the inspectors of academies and numerous notes inserted in the official bulletins of the ministry with a view to stopping this destruction. Notwithstanding this, I deem it my duty to respond to the wishes of my colleagues by calling anew upon the teachers for their concurrence.

I therefore desire you, M. le Préfet, to address instructions to all the teachers of your department, that they take pains to teach their pupils how to distinguish the insects that are injurious from those that are useful to agriculture; and that they encourage them to destroy the former and protect the latter. It is also of first importance that children should be made to understand that it is to the interest of their families that they destroy no birds' nests, and that in doing so they show themselves both reckless and ungrateful. They should also know the penalties of law that they incur by so doing. [The statutes and ordinances forbidding this practice are here cited.]

Teachers should also remind parents of the responsibilities incurred by allowing their children to destroy birds' nests, and that they are themselves liable to a fine for the acts of their minor children in allowing them to commit this act. I will add that in some communes that could be named teachers have conceived the happy thought of organizing among their pupils little societies for the protection of useful animals. These have done good service, and it would give me great pleasure to see their number increased. I attach, sir, the most serious importance to the execution of this circular, the receipt of which you are requested to acknowledge.

Among the other circulars were lists of birds and animals most useful to the farm and garden; statements of prosecutions under the game laws that had been carried to full punishment; examples of the benefits from the abundance of birds and of injuries from their scarcity, and pathetic stories to be read by the children that might well tend to enlist their sympathies in behalf of these feathered allies of the field. The following may be taken as an example of the class of stories thus brought under their notice:

A sportsman was returning from an unsuccessful tramp, when a little bird accidentally crossed his path. With scarce a motive, for it was not a game bird, he discharged his gun, wounding the little creature, which fluttered slowly away. Curiosity led him to follow the trail till it led to the nest where the mother bird was found in a dying condition, and trying to protect its young that were covered with its blood. The thoughtless cruelty of his act so impressed the hunter that he resolved from that moment that he would never kill another bird.

It may be thought that I am wandering from my subject in passing from trees to birds. But really, can we speak of rural scenery and sylvan life without associating them together? In fact, this very subject of the protection of insectivorous birds for the benefit of agriculture presents a strong argument in favor of planting groves and belts of timber between our fields to afford a nesting place and a shelter for them; and the measure we have seen introduced in France from motives of public economy deserves attention in our own rural districts as much as in any other part of the world.

In speaking of what might be done in favor of rural adornment, and incidentally of planting, through the instruction of our schools, it will

at once occur to us that our teachers should themselves be taught; and hence we come to another phase of education that concerns our normal schools. We cannot here expect to do more than impart some general ideas on the subject; but there should at least be provided half a dozen lectures before each graduating class, and something, if no more than a single lecture, should be given at our annual teachers' institutes upon this most important subject.

In conclusion, we would remark that in this question of forest supplies and the incidental benefits of woodlands, now beginning to excite attention, we start with the disadvantage of having to encounter the prejudices of those who have been accustomed to look upon our woodlands, if not too abundant, at least as infinite in amount and in duration. We must undeceive the overconfident, convince the doubtful, and awaken an interest in the indifferent.

If we may borrow from the experience of our clergy, who generally find old sinners hard subjects for conversion, our greatest hope depends upon the impressions that may be made upon the young. This class we find in our schools, and we have the best of opportunities for inspiring in them a love of the beautiful, as well as of the useful, in the life that is opening before them. Although this association of the pleasant and the profitable should be a leading object in every phase of education, we may give prominence to the former without injury to the latter, and feel assured that, when a fondness for any study or pursuit is once established under pleasant and attractive associations, the uses will be discovered, although they may not have been directly pointed out.

If we can induce the young man to plant a grove of trees for the charming contrast of light and shade that it will afford when grown, he will in due time discover, without being told by us, the market value of the timber in the trees that cast these shadows. The planter of a woodland of oaks and pines may enjoy their growth through a lifetime, and his children after him, until they become grand and majestic, yet this will not prevent us from figuring on their value for staves and shingles when they come to maturity and should give place to a new growth. 'Tis true the love of gain is low and sordid as compared with the more refined and honorable motives of life, and we should appeal to this only when the one you would influence will listen to no other. If by means of the latter we can secure the enjoyment that they afford, and at the same time assure the advantages of the former, we shall have reached the highest point to which our education can attain.

Mr. NORTHROP, of Connecticut, spoke of the recent formation of the Association of Middlesex Falls, in Eastern Massachusetts, to lay out one of the finest parks in America. One object of this association would be to organize a school of forestry. He concluded by saying that until schools of forestry were established the principal substitute should be the teaching in the public schools, and that the minds of the scholars

should be imbued with a love of rural improvement, and that the planting of trees should be encouraged.

Mr. DEWOLF, of Ohio, made some remarks upon the question of the morning, How can the status of the teacher be changed? We are taught, he said, to look to the ministerial or clerical professions for certain classes of work, and these professions are expected to lead us. It seemed to him that those in his profession needed to understand that they had relations to society, and that just in proportion as they felt this they would have the same power that other professions possess.

Mr. NORTHRUP stated that there were in Connecticut sixty associations for rural improvement, and that he had aided in forming as many more in other States, and in every case he thought the result had shown the wisdom of the organization.

Mr. DEWOLF followed with some remarks on tree planting.

On motion of General Eaton, the department then adjourned to meet in the same hall at 10.30 the next morning, instead of 9.30, that the members might have an opportunity to visit the Normal College.

A complimentary dinner was tendered the department this (Wednesday) evening at Delmonico's.

Hon. William Dowd presided, and short addresses were made by General Eaton, General Webb, Neil Gilmour, J. P. Wickersham, Aaron Gove, M. A. Newell, D. F. DeWolf, Dexter A. Hawkins, John D. Philbrick, Mr. Page, J. H. Smart, Hosea Perkins, and Professor Scott.

FOURTH SESSION—THURSDAY MORNING.

NEW YORK, *February 10, 1881.*

The department having met, the members listened to some remarks by Mrs. MARY H. HUNT, of the Woman's National Christian Temperance Union, who spoke of the evils of intemperance and the importance of training the children in the schools to habits of temperance, from the standpoint of physiology and chemistry.

General EATON then read the following paper:

MUSEUMS ILLUSTRATIVE OF EDUCATION.

This paper is entitled "Museums illustrative of education," by which expression I mean to indicate collections of articles, apparatus, and objects which may illustrate or symbolize the means and methods and processes of human instruction.

The establishment of such collections involves the question of their expense as well as the question of their relation to the principles of pedagogics. The first question naturally will be decided by the value of these museums as ascertained in the consideration of the second.

All theories of education agree in emphasizing the importance of the senses in the cultivation of the intellect. The conditions of infantile life are mainly physical, and show few signs of the mental power of the

adult. The first years of the child are a waking up to its own wants and to the influences which bear in upon it through the avenues of the senses. The mother still stands to it as its next self, supplying its wants, protection, nourishment, and affection, and directly shaping those conditions of the environment which affect or direct development. The mother is first to repress the cry or to awake the smile, yet all parental agencies speedily find their limit, and others must be admitted, but the principles of growth remain the same. The scope of material conditions increases; society, other than parental or family, appears, and the teacher is brought into requisition. His success will be determined by his skill in commanding the attention of his pupil. As a rule, he will find social economies placing him and his pupil or pupils during the hours of instruction apart from the influences of the family and society and the means and opportunities of observation. Aside from himself and his own attainments, the chief instrumentality at his command is the book.

The schools as thus constituted to-day, of teachers, pupils, and books, with all their conditions, have not come by chance, but are a growth, the marks of which can be distinctly seen if we attempt a comparison of them with the schools of a quarter century, a century, or two centuries ago. Take the subject of text books. The homely little horn-book of the old days has expanded and multiplied itself into numerous and various spellers, readers, arithmetics, geographies, and other text books.

The legs of the little pupils do not so often dangle from their seats. The lighting, heating, ventilating of the room, indeed the conditions of the school generally, are more healthful. Something to aid illustration, such as blackboards or charts, adorns the walls. The dunce block is absent, the ferule less common, and the relation between the teacher and pupil is less that of distance or of physical force on one hand and fear and unnatural restraint on the other, but it has become a nearer approach to the relation between the worthy parent and the worthy child.

And yet these advancements of the school on previous decades and centuries are not quite satisfactory. The teacher with genuine power to instruct and train will find a thousand ways to introduce devices, imagery, motives, by which the pupil's attention will be increased, his conceptions made more clear, and the result more nearly satisfactory to the philosophical view. To the close observer these improvements suggest a purpose to discover and realize, if possible, the relation in which the child is first found to parent and surroundings.

In the history of races and of human culture antedating the use of letters, we have the growth of oral traditions. But here and there a man arises with the histrionic power. He can represent and imitate others, and he meets at once a response from those who hear or witness his exhibition. Another is so constituted as to have power on the side of conscience in moralizing, and finds a corresponding response from the

consciences of those around him. Still another has the power of rhythm, and weaves into poetic language and imagery the experiences, the heroic acts of others, or the striking traditions or the solemn precepts of the moralist, and finds perhaps a chorus of voices responding to his measure.

At another point, historically, we find that a great mind, through its various avenues of information and reflection, has advanced its accumulations far beyond its contemporaries, and the possessor of this mind becomes a teacher. If it be Socrates, his pupil is any one who will converse with him; his place of instruction, the wayside, shop, or garden; and the illustrations and the imagery used are drawn from familiar objects and experiences. If it be Plato, he walks with his pupils in the groves of Academe and discourses upon the profoundest subjects of philosophy. If Aristotle, he adds to philosophical discourse, and leads to heroism by reading to Alexander the pages of Homer. If it be Jesus, the Saviour of men, He goes about doing good; His disciples follow Him; He teaches the greatest doctrines of life, drawing His illustrations and imagery from the objects about them and the experiences of their common life.

But with the introduction of letters the increasing record of facts, the advance of knowledge, and the development of science made it both possible and necessary for the learner and the teacher that selections should be made of the subjects to be taught and that the mass of the facts brought into view should be reduced and rendered available for the period of school days.

We need not stop to inquire how religious motives in all great movements have proved supreme.

It is sufficient to note that in the middle ages, when the education which we now have began to take form, the methods of instruction, controlled by the supreme ecclesiastical power, were shaped to the acquisition of knowledge from the book only, and were necessarily of the most abstract character.

We are all aware how little was then known in all departments of natural history or natural sciences. We cannot pause to consider the agitation produced by the researches which have advanced these departments of knowledge. The theory that ecclesiastical ideas then held and formulated were infallible and admitted of no change encountered antagonisms on the part of all who sought to improve the methods of instruction or to enter new fields of learning.

The absurdities and barbarisms of the schoolmasters of three or five centuries ago we pass over. It is our misfortune as educators that we are still largely under the dominion of these abstract methods, though the greatest evils have been encountered not in the application of these abstract methods to adult minds or to minds after they have reached the period of reflection and reason in which the processes of abstraction become natural; the chief misfortune lies in their application to the

period of youth, when the senses perform so large a part in all mental operations.

We are told, as you know, that the brain is often not matured till the child is ten years old. The teacher must take him as he is. He must expect him while a child to act as a child, to learn as a child, to speak as a child.

These difficulties are specially intensified in all efforts to instruct those who are unfortunate either in the loss of sight or hearing or deficient in mental powers—unfortunates whom no one attempted to teach in ancient times and who have only within a very recent period, under the advanced ideas of christian philanthropy and the progress of modern science, been touched by the semi-creative power of education in schools. These teachers have found it possible to succeed only by meeting the issues which I here bring to the attention of educators in general. They have first studied the child and marked the signs of incipient development. They have analyzed the subjects of instruction and the methods in general use, and found how these could be modified to meet and answer the conditions of their pupils. Their triumph is a marvel, and we hold that the teacher of the normal child, normally developed, may improve his methods by a similar process; and in affirming this we do not admit that the book is useless, that our schools are failures, that our teachers are all ignoramuses, that we are all on the wrong track now.

While we do not deny that we may learn from every civilized nation, we believe and affirm that we have teachers, that we have methods, that we have school-houses and appliances and institutions of all grades (except the very highest), that we have systems of education nowhere excelled, and that on the whole our education, as imperfect as it now is, is producing a society better fitted to live a better life on a larger scale and with better results than are found anywhere in the history of the past or under any other form of education.

We are among those who believe in American institutions and that they embody more good for a great people than any other. We are not so blind as to think we have all that is best. We would learn from all others and draw to ourselves by suggestion and appropriation every benefit they can confer. A moment's consideration will bring to mind the line in which to apply to our education the correctives which we are considering. Prof. Joseph Henry was accustomed to express his idea that our education needed a corrective by saying that we should, in the order of instruction, consult the order of the child's development. We must study the child as he is, physically, mentally, morally, in his material and spiritual conditions and surroundings, and seek to comprehend his destiny. As we have seen, those who deal successfully with the development of defective youth come into the most intimate relations to their actual conditions, and by their nice adaptation of methods bridge over blindness or deafness or imbecility, and reach, nourish,

train, and secure growth. Dr. Howe found there was one and only one available medium to the mental powers of Laura Bridgman, the sense of touch or feeling, and we have the marvellous result: Laura is introduced to the world of knowledge common to others. Applying the same principle in the education of those who are sound, who are without any special defect, we should devise methods adapted to the best development of the entire capacity of the child. In not doing this we commit our greatest blunders. In correcting these blunders we must guard against the tendency to fall into greater evils. The so-called object teaching has been offered as a panacea, yet we often visit a school where these object methods are employed and find the development of the child quite as partial and defective as under the old methods. The evidence is positive against any exclusive method. Professor Bain observes:

Young and old alike on seeing a good picture are apt to rest there. Such is the tendency of all representations, sketches, maps, and the rest. The most valuable helps to geography are models, and if these could be multiplied in schools the conceptions of the general forms of countries would be vastly enhanced; while the subsequent lessons of juxtaposition and relative situation would find a groundwork of remarkable cohesiveness.

What we want in our instruction and training, we repeat, is to use in due proportion all the child's capacities for his harmonious development; not to use solely his perception, or reflection, or expression, or memory, or imagination, or reason. At best there will be much in every child which the teacher cannot comprehend, and with forty or fifty pupils to the teacher there is need that all helps should be in his hand. In these perfected schemes the book will ever hold the preëminent place. Indeed, the child who acquires a taste for reading the book and skill in handling it has the clew to all learning, whether he have a teacher or school or not.

But while the wisest endeavors are used to make the book most effective, it can impart only second hand information. It is equally as important that the pupil should be taught how to acquire also knowledge at first hand: to bring his own eyes, his own ears, experiences, observations, to the service of his mind. And yet his memory must be trained alike in its recollective and retentive capacity; he must know how to reason, too, on what he experiences or observes or reads. His imagination must be stimulated and enriched by the power and beauty of fable, parable, poem, song.

Both Socrates and the Great Teacher of Men employed with the greatest skill the power of imagery to reach the heart and direct the conduct through the imagination.

Instead of doing this whole work for the child, which is here urged, we find that one teacher is strong in operating on the sensibilities, another in forcing obedience upon the will, another in arousing conscience, another in quickening the reasoning faculties, another in cultivating the memory, another in inciting reflection, another in developing

expression, another the taste, another the perceptions dependent upon the senses. What we want and are urging is that an education shall comprehend all these.

A grand defect lies not with the purpose and desire of the teacher, but in the lack of possibilities. The teacher in Siam cannot travel with his royal pupil to Siberia to convey to him a correct idea of snow and ice. He must do it through words and imagery. If we cannot have the thing, we must have the most pertinent illustration or image of it. Since we cannot go everywhere for these observations, we must gather and concentrate their illustrations. The past cannot reënact itself for the student of history. As the book aids him in the study of centuries gone, so the museum must bring together specimens of the armor, implements, furniture, architecture, and arts of those historic ages beyond his observation, and arrange and group them in a manner adapted to his information. "Certain it is," as Bacon observes, "that into the deep, fruitful, and operative study of many sciences, especially natural philosophy and physic, books be not the only instrumentals; wherein also the beneficence of men hath not been altogether wanting; for we see spheres, globes, astrolabes, maps, and the like have been provided as appurtenances to astronomy and cosmography as well as books; we see likewise that some places instituted for physic have annexed the commodity of gardens for simples of all sorts, and do likewise command the use of dead bodies for anatomies."

The idea is as old as the Temple of the Muses. We have all read of the museum at Alexandria, established by Ptolemy 284 years before Christ, and of that one founded by the Roman Emperor Claudius. Then we get glimpses of those at Pergamos, Antioch, and Byzantium. In modern civilization the idea has received great enlargement. Years ago Prof. Joseph Henry remarked:

There is scarcely any subject connected with science and education to which more attention is given at the present day than that of collections of objects of nature and art, known under the general denomination of museums. This arises from their growing importance as aids to scientific investigation and instruction. As they are intended to subserve different ends, they are of different characters. There are, on the one hand, large central museums, supported by government appropriations, and on the other, local museums, which are established and sustained by societies and voluntary individual aid.

One of the most interesting forms which museums have assumed in our day is that wherein the collection of articles for the promotion of public information is combined with that very ancient commercial device, the fair. Many cities and countries have organized such exhibitions, notably the World's Fairs of 1851 and 1862 in London, the Universal Expositions of 1867 and 1878 in Paris, the Weltausstellung of 1873 in Vienna, and our Centennial of 1876 at Philadelphia. Each exhibition of this kind has stimulated and inspired the people who beheld it and has left behind it a permanent museum of great value for the future instruction of the public.

Now, while the student of pedagogical theory and practice finds much in these exhibitions and museums which teaches him, it is only at exceptional times and in special places that he can have frequent access to material illustrating the progress, methods, and conditions of his art. Impressed with the fact and bearing of this deficiency, educators have from time to time endeavored to organize collections illustrative of the subjects and methods of instruction.

Comenius, among other valuable works, prepared his *orbis pictus*. He would have the word learned in connection with the thing; thus, in the study of science the scholar must, as far as possible, have the objects themselves before him, and, when this cannot be done, correct drawings or pictures of them. He would have the true order of instruction learned from nature, and emphasizes the employment of the senses.

Later there came Pestalozzi, reviving the same propositions in a modified form: first, he would teach the thing and the word together; second, he considers that the only effective agents through which to acquire the knowledge of things are the senses, chief of which is that of sight; third, the child should study the objects immediately around him; fourth, from this starting point the sphere of knowledge must be extended by the gradual enlargement of observations.

Then came Fröbel, seeking to perfect what these eminent men had already attempted in the application of nature's method in the education of the child.

It should be recollected that during the progress of these changes in theory and practice the subjects of instruction were multiplied. Botany, mineralogy, zoölogy, chemistry, physics, and astronomy made great advances. Each engaged the attention of master minds. Experiments and illustrations in the presence of the pupil increased, and by degrees he was encouraged to attempt manipulation for himself. Under the old classical curriculum the library was the chief aid required in instruction, but now cabinets of minerals and of botany were introduced, and in time collections of specimens illustrative of all the physical sciences.

Dr. De Cuyper, a distinguished professor at the University of Liège, says, in his report on polytechnic and higher industrial schools in Germany, that the success of these schools is to be ascribed to the educational auxiliaries which the student finds in the varied and complete collections connected with the schools. These collections educate both the professor and the student. The famous Royal Industrial School at Berlin (Dr. Reuleaux's) has at present 16 distinct collections; the Mining Academy at Freiberg has 11; the Polytechnic School at Munich, 27; the Polytechnic School at Carlsruhe, 12; the Polytechnic School at Darmstadt, 15; and the Polytechnic School at Brunswick, 14.

In 1877 the Saxon ministry of public instruction thought it of sufficient importance to issue a special circular calling attention to the excellent papier mâché and other models prepared for the use of schools by the Museum Salvator at Dresden.

The increased use of illustrations in science and physics affected the methods of teaching the classics and mathematics. The professor of Greek and Latin now adorns his room with maps, plane and raised, or the localities mentioned in the text, with typical representations of architecture, and with the busts of the celebrated persons mentioned. The change is no less in the methods of teaching mathematics. Says Herschel :

Number we cannot help regarding as an abstraction, and consequently its general properties or its axioms to be of necessity inductively concluded from the consideration of particular cases. And surely this is the way in which children do acquire their knowledge of number, and in which they learn its axioms. The apples and the marbles are put in requisition, and through the multitude of gingerbread nuts their ideas acquire clearness, precision, and generality.

Says Mr. John Stuart Mill:

The fundamental truths of the science of number all rest upon the evidence of sense; they are proved by showing to our eyes and to our fingers that any given number of objects, ten balls, for example, may by separation and rearrangement exhibit all the different sets of numbers the sum of which is equal to ten. All the improved methods of teaching arithmetic to children proceed upon a knowledge of this fact. All who wish to carry the child's mind along with them in learning arithmetic—all who (as Dr. Biber in his remarkable letters on education expresses it) wish to teach numbers and not mere ciphers—now teach it through the evidence of the senses, in the manner we have described.

Mr. Spencer observes, quoting Mr. Wyse:

A child has been in the habit of using cubes for arithmetic; let him use them also for the elements of geometry. I would begin with solids, the reverse of the usual plan. It saves all the difficulty of absurd definitions and bad explanations on points, lines, and surfaces, which are nothing but abstractions.

Huxley says:

But if scientific training is to yield its most eminent results, it must, I repeat, be made practical. That is to say, in explaining to a child the general phenomena of nature, you must, as far as possible, give reality to your teaching by object lessons; in teaching him botany, he must handle the plants and dissect the flowers for himself; in teaching him physics and chemistry, you must not be solicitous to fill him with information, but you must be careful that what he learns he knows of his own knowledge. Don't be satisfied with telling him that a magnet attracts iron. Let him see that it does; let him feel the pull of the one upon the other for himself. And, especially, tell him that it is his duty to doubt until he is compelled, by the absolute authority of nature, to believe that which is written in books. Pursue this discipline carefully and conscientiously, and you may make sure that, however scanty may be the measure of information which you have poured into the boy's mind, you have created an intellectual habit of priceless value in practical life.

Combe remarked in general:

The true plan is to present the object to the children. Let them examine its form, size, color, and other particulars, and afterwards tell the name, and spell it. All nature is adapted in the most beautiful manner to the faculties, and the study of nature imparts great pleasure. Thus the curiosity of children to know things is insatiable. You are aware that they will break their playthings to see what is within. When properly taught, the elements of all the sciences are simple. Talk to a child of geometry, triangles, and hexagons, and you will puzzle it completely. But present a figure, let it notice that it has three sides and three corners, then tell it that all such

figures are triangles, and it readily understands the matter. So of the other geometrical figures. Children always take pleasure in learning by actual presentation. They can be instructed in almost anything which can be presented to them directly and subjected to their senses.

Herbert Spencer affirms also as a general principle:

The rudimentary facts of exact science are now being learnt by direct intuition, as textures and tastes and colors are learnt. Employing the ball frame for first lessons in arithmetic exemplifies this. It is well illustrated, too, in Professor De Morgan's mode of explaining the decimal notation. M. Marcel, rightly repudiating the old system of tables, teaches weights and measures by referring to the actual yard and foot, pound and ounce, gallon and quart, and lets the discovery of their relationships be experimental. The use of geographical models and models of the regular bodies, &c., as introductory to geography and geometry respectively, are facts of the same class. Manifestly a common trait of these methods is that they carry each child's mind through a process like that which the mind of humanity at large has gone through. The truths of number, of form, of relationship in position, were all originally drawn from objects; and to present the truths to the child in the concrete is to learn them as the race learned them. By and by, perhaps, it will be seen that he cannot possibly learn them in any other way; for that if he is made to repeat them as abstractions, the abstractions can have no meaning for him, until he finds that they are simply statements of what he intuitively discerns.

If, after considering the opinions of such eminent authorities, there be any who deny that the changes here urged are improvements, it will be in vain to present to their attention further arguments. Educators generally have accepted or are accepting these principles, but from what has already been said it is evident that when they speak of the museum illustrative of education they mean something quite different from the cabinet or apparatus by which the teacher of science or mathematics points his lesson. The several subjects of instruction will indeed find here their appropriate illustration; but, passing beyond these, such museums will contain all material which can, to the eye of the teacher, the parent, and the administrator, convey information respecting the relations of education to man, to industry, to art, to science, yes, to civilization. Such a collection will be to normal training what a natural history museum is to instruction in science, what an herbarium is to botany. Here the teacher, the superintendent, the school-house builder, the maker of school furniture, the sanitarian, the sociologist, should find material for thought and information.

Statesmen and students of history here find in the use or neglect of these methods the secrets of the greater or less progress of nations.

The protest against abstract methods in the training of early childhood and the effort to make more complete aids and illustrations have made rapid strides within the last fifty years. Already we have information of sixteen museums in Europe specially illustrative of education. These are located at Vienna, Buda-Pesth, St. Petersburg, Amsterdam, Rotterdam, Brussels, Paris, Berlin, Rome, Palermo, London, Munich, Dresden, Zürich, Moscow, and Berne.

The pedagogic museum holds the relation to the general museum that the pedagogic library holds to the general library. The general library

attempts to make a collection of books exhaustive of its kind, and the general museum attempts to make a general collection of articles exhaustive of its kind and illustrative of its subject.

What Mr. Perkins, that eminent friend of art, has said of collections in his department, viz, that "we aim at collecting material for the education of the nation in art, not in making collections of art," educators may say with reference to museums illustrative of education. We do not seek to make collections of objects of curiosity merely. We seek to make collections which will be illustrative of the condition, progress, and improvement in education, whether these relate to systems, or institutions, or methods, or subjects, or appliances.

All who have studied the development of education in Ontario under the eminent Dr. Ryerson have been impressed with the aid his improvements received from the educational museum he so early established.

The Japanese government, after sending commissioners to see the best systems, institutions, and methods, and calling to their aid experts, administrators, and teachers from all parts of the world, expended large sums of money in collecting the material for a museum illustrative of education.

Few governments are more thoroughly convinced of the necessity of educational museums than the government of the French Republic. There may have been differences of opinion among the great men who have been at the head of the ministry of public instruction since 1870—Messrs. Jules Simon, Waddington, Bardoux, and Jules Ferry—but on this point they are not divided.

In 1878, when France had no educational museum, the government appropriated 100,000 francs in order to enable the teachers to visit the Paris Exposition, the museum par excellence. M. Bardoux, minister of public instruction, in addressing the 12,000 teachers who had come to Paris, said, among other things:

You cannot be good teachers unless you are continually learning yourselves, and you cannot instruct children successfully unless you study every day the progress of the art of teaching. You must acquaint yourselves with new methods of teaching and with the latest improvements in school apparatus. We (the government) intend to establish educational libraries all over the country, and we shall endeavor to give you permanent cantonal museums.

Pedagogical aids advance most rapidly in the form of libraries. According to the report dated in 1880, 929 of these libraries were established in France. According to recent information they have increased to 1,725. Some departments have one and others as many as sixty-three.

Jules Ferry, minister of public instruction, published a suggestive list of books from which selections could be made by those organizing these libraries. First, are works relating to general pedagogics, such as those of Rollin, Madame Necker, Rousseau, Guizot, Locke, Herbert Spencer, and Jules Simon; second, works on practical pedagogics, those by de

Gérando, Girard, Madame Pape-Carpentier, Levasseur, and Legouvé; third, books of reference, such as the works of Joly, Cuvier, Hippeau, Buisson, and Gréard; fourth, works on the history of education at home and abroad, foreign and domestic school legislation and reports.

The minister adds:

It is not the number of books, but their value, which makes a pedagogic library.

The question of establishing museums illustrative of education has long interested American teachers and officials. They have closely watched the progress of this idea elsewhere and have considered its application at home. Their opinions, as expressed in a large number of letters recently received at the Bureau of Education, are strongly in favor of establishing such a museum in connection with the educational library already collected, in order that the first source of information for the student of pedagogics, namely, the literature of the subject, may be adequately supplemented by the second, to wit, its illustration.

They believe that there should be one place in the country where the American educator or teacher may study all that is known touching any given phase of education. They also believe that the nation can and should do this, which States and cities, however powerful, cannot do as well, and which private institutions, for obvious reasons, cannot hope to accomplish at all.

A small appropriation has been made by Congress for cataloguing, caring for, and increasing this collection, and the Bureau desires the best suggestions from every quarter in order to make its use most effective for the improvement of education throughout the country, as contemplated in these brief statements and hints.

A telegram was received and read from Superintendent Andrew J. Rickoff, of Cleveland, Ohio, announcing his inability to be present on account of illness.

It was then voted that Hon. J. W. Patterson should deliver his address in the afternoon instead of the evening, as announced.

Mrs. WALWORTH, school commissioner of Saratoga Springs, N. Y., asked whether something could not be done to teach the elementary principles of honesty and morality in the public schools.

Mr. GOVE, of Colorado, said that there was no city in the country where the teacher was not required to present testimony of a moral character and upright life, and that the influence of the teacher was better than text books or formulas of morality.

Mr. DEWOLF, of Ohio, urged that the committing to memory of the gems of literature was a most efficient means of teaching morality, and said that much could be done by the teachers towards answering these questions by living good and godly lives themselves.

Mr. MURPHY, of New York, thought that some teachers were not of high moral character, and cited the case of a teacher in Troy who sent her pupils out to buy beer.

Mr. NORTHROP, of Connecticut, said that what this gentleman had said he believed to be exceptional; he thought the great majority of the teachers in the public schools were christian teachers, who were seeking to illustrate by their lives the principles of morality and virtue.

Mr. SANFORD, of Middletown, N. Y., rose to advocate the morality of the teachers of his State, and was followed by Mr. Barringer, of Newark, N. J.

Hon. J. W. PATTERSON, observing that General Eaton had called attention to the fact that education has two sides, objective and subjective, said that the child at home begins his instruction in the objective method, which is the natural method of teaching. The perceptive faculties are developed first; afterwards the child begins to reflect. Object teaching is as old as the world. He asked if there was not danger that the other side of education, the development of the power of thought, might be forgotten.

Mr. SMART, of Indiana, recurring to the point introduced by Mrs. Walworth, wished to enter a protest against the assumption that the schoolmaster is responsible for everything. He denied that he had such responsibility. He thought that children are not cared for at home as they should be. Still, teachers do not do as well as they can. The best kind of work and the best instruction in morals are going on in schools every hour of the day. In his judgment the power of self control is one of the greatest moral forces, and the schools were teaching this very thing.

Mr. SLADE, of Illinois, thought it was the influence exerted by the teacher that would tell, not what is in books; that if the pupils were to be made what they should be there must be character in the teachers. The public schools are the grand leveller, not by dragging any down, but by bringing up the lowly and the humble.

Mrs. WALWORTH explained that she did not bring any charges against teachers, as they were generally well meaning and intelligent, but she thought many teachers in the northern part of New York had little knowledge and might receive instruction on this point.

Dr. PHILBRICK, of Massachusetts, referred to the paper which had been read as in no way one-sided, but an exact statement of facts. No substantial progress could be made, except in the solid study of education or pedagogics. One important thing is to have pedagogical libraries; another, to have a great pedagogical museum at Washington.

General EATON moved that a committee of five on resolutions be appointed. Adopted. He then expressed regret that Dr. Elisha Harris, of Albany, N. Y., who was to read a paper on "Education and health," could not be present.

Remarks were then made by Mr. Carleton, Mrs. Hunt, Dr. Philbrick, and General Eaton, and the department then adjourned, to meet at 3 P. M.

FIFTH SESSION—THURSDAY AFTERNOON.

NEW YORK, *February 10, 1881.*

Mr. MARBLE announced the committee on resolutions as follows: J. O. Wilson, District of Columbia; H. S. Jones, Pennsylvania; Charles Northend, Connecticut; Aaron Gove, Colorado; and E. A. Apgar, New Jersey.

Hon. J. W. PATTERSON, State superintendent of public instruction in New Hampshire, read the following paper:

NATIONAL AID TO EDUCATION.

The old masters of the world arrogantly assumed that every Roman citizen was born a ruler; and hence the vainest as well as the greatest of Roman orators said, "Any one can make himself a jurisconsult in a week, but an orator is the production of a lifetime." Aristotle, more thoughtful and observant of the causes and drift of human affairs, said, "All who have meditated on the art of governing mankind have been convinced that the fate of empires depends on the education of children." The political philosophy of the great Athenian voices the experience of all the ages since his day. It would be easy to fill the time allotted to me with utterances of similar import from publicists and practical statesmen of every period and phase of civil progress.

The conservative forces of government are moral, not physical. It is the intent and spirit of the people which give validity and inviolability to law. Without this it is soulless and impotent. Statutes cannot bring order and prosperity to a state whose citizens are not a law unto themselves. A people who have not an intelligent appreciation of liberty, and do not see the line beyond which it passes into license, will perpetually chafe and rebel against its necessary limitations. They are not safe guardians of civil freedom, if they do not apprehend its nature and the institutions by which it is reduced to a system of practical government. Individuals who, like children and madmen, have not the capacity or disposition to govern themselves in a way to subserve their own or the public interest, cannot claim the right of self government. Equally, a state in which a large majority of the people do not comprehend the nature and genius of free institutions cannot assert the right of popular government, and has no cause to complain of the restraints of a higher power that would suppress the violence or fraud that tends to the overthrow of law and liberty. Should the intelligence of the electorate of any State of our Union decline so low as to render self rule a farce or a peril, unquestionably that article of the Constitution of the General Government which guarantees a republican form to every State comes into action and is paramount to all State authority. The guarantee carries with it an implied power to guard against such a contingency, not necessarily by force, but by

demanding or providing in each State the means of popular education. It is idle longer to talk of this as an exclusively local or State question. It involves the welfare and life of the Union, and is therefore a national question. It is true, "the national charter," as Judge Tourgee has said, "is dumb in regard to it;" but it is potentially in it. The conception is as old as the convention of 1787, and destined soon to come to its birth in some living form. As the great war powers slumbered in the Constitution till wakened into activity by the necessities of the Government, so this will be seen to be a legitimate offspring of fundamental law when the instinct of self preservation shall demand it. The Republic carries with it, written or implied, the right to perpetuate itself; and national education being essential to that end, its maintenance will be found necessary to transmute the blind, brutal instincts of ignorant masses into intelligent forces of strength and prosperity. We have not yet realized the full measure of disaster possible to a free state based upon popular ignorance, but the drama is on the stage and may yet become a tragedy of blood.

I will not repeat statistics familiar to the public mind, but must recall for your reflection the painful fact that 45 per cent. of illiteracy in sixteen States of the Union has not only placed all political power, in that section of the country, in the hands of a majority of the remaining 55 per cent. of voters, but, not to mention its weight in the electoral college, has given to one-twelfth of the voting force of the Republic 72 per cent. of power in the lower and 84 per cent. in the upper branch of Congress. The illiterate balance of power, incapable of understanding or too weak to defend their rights, may be excluded or defrauded at the polls, the constitutional guarantee of State republics defied, and the vast interests of the country subjected to a usurped power of legislation.

But history suggests to our apprehension yet graver perils. This blended mass of humanity, which to-day may be the convenient instrument of personal avarice or ambition, awakened in the bitter conflicts of party to a consciousness of its strength, held by no moral restraints, and maddened by some real or fancied social wrong, may at length sweep down, with the resistless power of elemental forces, in the States so cursed, all the forms and landmarks of an inherited liberty, or, like a Parisian mob, stain its altars with the blood of the purest and ablest of the land. Should such an emergency come to us, as it has to other republics, nothing but national power could arrest the desolation; and the Executive, in the discharge of his duty, would be forced to intervene to rescue society from destruction. When we reflect that such possibilities may become an accomplished fact, shall our activity in the cause of popular education be paralyzed by the timid assertion that the work is not national, but one left to the care of the several States? What if the States refuse or neglect to care for this common interest; shall the nation slumber over the restless volcano till it is too late to save our interests, our honor, or our liberties? A people upon whom the respon-

sibilities of the ballot have been cast have a right to demand of the government which conferred it a degree of intellectual training which shall enable them safely to discharge its functions. But we are told we cannot afford to thus secure the future at the cost of sacrificing the fundamental principle of the local distribution of power. Here we are met again by the ever recurring, never ending dogma of State sovereignty, which, without the discrimination of the ghost of Banquo, stalks obtrusively into every subject, seemingly unconscious that it is a ghost. State rights are sacred and impregnable barriers to the usurpations of central power, but are impotent and untimely obstructions in the path of national safety. Will not all State rights perish in the doom that awaits the universal decline of popular intelligence? But will some advocate of local sovereignty tell us how a national supervision of this great department of the common welfare is to imperil State rights more than the regulation of commerce and currency? The exercise of concurrent educational powers in the States is no more dangerous to personal or State rights than the discharge of concurrent judicial functions or the exercise of a concurrent power of taxation. The objection is the spectre of a disordered fancy, and has no real existence. But if it were true, it would be no loss to exchange a paralyzed State function for a national one that would breathe vitality through the whole organism of society. Of what value are rights to a State, if its population cannot discriminate or comprehend them, and have not the ability or spirit to defend them? Abstract political powers are a utopian dream without the intelligence to recognize and embody them in practical laws and institutions. Political power is a dangerous weapon in the hands of a people who have not the wealth, the arts, the utilities, the industries, the altars, and the homes that spring from the schools. Not simply our foreign influence and Federal unity, but the domestic prosperity and security of the States must fall with the decline of local intelligence.

The laws of trade and social economy, the inventive skill, the thrift and enterprise of business, the capacity for industrial production, and the accumulations of wealth, the growth of brain power, and moral stamina which bring influence and character to communities have their birth and nourishment in the schools. All these and the absolute security of States against the encroachments of Federal power will be found in a system of free universal education. The ingenuity and skill of the workshop, the sense and manliness of the farm, the scope and enterprise of commerce, the genius and heroism of arms, the wealth and pathos of literature — all industries and all professions droop and die in the eclipse of popular intelligence.

The question of congressional aid to education is fundamental, and has been forced into the arena of legislation against the wish of parties by vexed problems for which statecraft can find no other solution. The situation is abnormal and disgraceful, and demands the forecast of prudent statesmanship rather than the empiricism of politics. Experience

teaches us that this great interest cannot longer be left to the exclusive care of the States.

The census of 1870 revealed the startling fact that more than one-fourth of our whole population above the age of ten years could neither read nor write and more than one-half the population of the late slave States above that age were illiterate. We do not allude to this in a spirit of crimination, but because it is an essential fact in the discussion. The advantage of the North, and especially of New England, in this regard has resulted from the circumstances of settlement and the character of their industries. This difference constitutes no legitimate ground of inaction. We of the North cannot innocently refuse to coöperate in an effort to remedy this great public peril because it is largely local, nor ought we to complain that the funds demanded for its removal, to be effective, will have to be distributed on the basis of illiteracy, and therefore unequally; for, while we may not derive as many advantages, we shall be benefited as essentially as the less favored section and in the only way in which the evil can be reached. We are one people. Our industrial and political interests are bound in a perpetual wedlock, and the whole family of States must rise or fall together. We cannot say one to the other, "I have no need of thee," but the members should have the same care one for another, and whether one member suffer, all the members suffer with it, or one member be honored, all the members rejoice with it.

There is an explicit grant of power in the third section of the fourth article of the Constitution, "to dispose of, and make all needful rules and regulations respecting, the territory or other property belonging to the United States." Basing its action upon this constitutional provision, Congress, in pursuance of a policy adopted anterior to the organic law, has, at successive periods since the administration of Washington, made grants of land for educational purposes, aggregating 95,737,714 acres. It has also made direct appropriations of money for this purpose, which amount to \$47,785,197.93. In many of these cases Congress has made, in accordance with the letter of the Constitution, specific regulations for the expenditure of the sums appropriated.

In view of this record, covering the whole period of our history, it is too late to question the power of the General Government to appropriate public funds for educational purposes and to disburse the same directly by its own agents. Such appropriations on the basis of illiteracy are not liable to the charge of an unequal distribution of public funds; for they are not given as donations to States or citizens, but for "the common defence and general welfare." Like forts and lighthouses at ports of entry and military and naval schools, they are not local but general in their purpose and effects. But in what form this national aid can best be applied is a practical question, demanding the most careful consideration. The independent *right* of the General Government to educate its people for the proper discharge of their public functions is incident to

its very existence. But as intelligence is an antecedent condition of self government, it must be conceded that the right to educate its citizens belongs also to each State; that right, however, cannot *limit* the obligation to the States, for the citizens of the States are citizens of the United States, and therefore the General Government, whose powers are supreme within their range, is bound to secure to all the children of the Republic, directly or through the States, suitable and sufficient opportunities to prepare them to discharge intelligently and safely their political duties. The public welfare is the supreme law of every State, whether founded upon a written or unwritten constitution; but the attempt to supplant State schools by a national system, or to establish a binary system, would be a measure so radical and hazardous that it should only be resorted to as a last expedient against the dissolution of the Republic. On the other hand, the distribution to the States of national funds, to be disbursed by them without supervision or responsibility, would be a failure as a permanent educational policy. Revenues so received would be lost in the scuffle and antagonisms of politics, or, like the old "surplus revenue" of 1836, vanish into thin air through a thousand follies. Should this not happen it would be diverted into special channels by dominant State prejudices or be made to minister to the higher education, while popular ignorance, which it is designed to remove, would be left to increase.

Colleges and universities will spring as a natural growth from public intelligence, but common schools must be planted and fostered by the government. The most urgent demand of the Republic to-day, looking at its political and social necessities, is a system of free primary instruction that shall reach all classes, races, and sects, and be directed and inspired by a supervision at once intelligent and unflagging. Unfortunately, districts the most benighted and deplorable are the last to realize their situation, and others have not the means to better their condition. National aid should be applied to the localities and populations most in want, and by an impartial intelligence that will make no mistakes.

In matters of such moment Congress should be guided by the rules of business which hold between private parties. Let it be sure that the thing paid for will be received. Security is the law of business between honest men, and surely parties who ignore conscience and repudiate solemn obligations have no reason to complain if held to the same rule.

To devise a wise and practical plan of national aid and supervision of instruction should be the work of an intelligent commission familiar with the wants and conditions of all sections; and even this would have to be perfected by experience, like other permanent institutions.

I would not presume to foreshadow a system in matters so fundamental and organic; but we may venture to suggest that the plan adopted and so successfully administered in the distribution and application of the Peabody fund would be a safe and instructive precedent for statesmen in the disposition of national funds to the same cause. I am disposed

to believe that, whether the proposed aid is to come from an invested fund or from annual appropriations, it should be paid directly to districts by educated and responsible agents appointed by the executive, and on such conditions as to improve and lengthen schools already existing and to secure the establishment of others in localities where they are needed. These school agents should act in harmony with local officials as far as possible, but be independent of State control and required to examine by visitation and report in detail the condition and wants of their respective districts to the Commissioner of Education. Such beneficent supervision by the Government if judiciously conducted would be felt to be beneficial to all interests, and would serve to draw the fellowship of the States into a closer union by invisible ties of gratitude and love. Or, if in any case prejudice, pride, or some fancied right should refuse to submit to an inspection designed to increase and perpetuate the blessings of liberty, it would furnish to the Government an opportunity to assert its paramount sovereignty in a case that would command the approval of mankind, which might be an incident little to be feared or regretted. It is best that the lines of power should be sharply drawn, and questions of jurisdiction set at rest by the court. We do not insist on mixed schools nor attempt to lay down the specific conditions on which public moneys shall be distributed for educational purposes; but we insist that it should be in accordance with the constitutional provision that "No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States."

I am not unaware that this scheme of national intervention in the educational interests of the country has been opposed on the plea that we cannot show any express power delegated to Congress to establish a system of schools in the States, and that consequently the power is reserved to and belongs only to the States. Our answer is that the objection is irrelevant, for we are not asking for the overthrow of State systems or the establishment of a national system. We are simply asking that Congress may go into the States and direct the expenditure of funds which, it is admitted, it has a right to appropriate for such purposes.

When Government appropriates public moneys, they should be disbursed by agents responsible to itself; but, if States have exclusive control of education, funds given for its advancement may be so diverted as to defeat the end in view. It has been done, and may be done again, without remedy.

But the right of such *supervision* is denied, on the allegation that it is not in the bond. I admit it is not in the letter; but I claim that it is the intrinsic life of the bond, without which it could not exist. If we are to deny to Congress all powers incidental to those expressed in the Constitution, we must abolish the Department of Agriculture and the Coast Survey, so essential to two of the great industries of the country;

shut up our Naval and Military Academies, and fold our arms in war and rebellion, and go to pieces for want of the constitutional power of self defence. Nay, one-third of the legislation of Congress is void, and the very charter of our liberties becomes a procrustean bed upon which the Republic is bound, and beyond which it can never hope to reach in all the progress of the ages.

We are told that "Federal education was not contemplated as necessary to 'establish justice, to insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to the people.'" Such language in our country and at our time is marvellous. Without popular education popular governments have no right of existence and cannot be maintained when established. The Republic has as legitimate a right to protect itself against ignorance as against pestilence and rebellion. Education informs and quickens the inventive powers, by which improved methods and new forces are given to productive industry; it lifts the poor from the ranks of dependent labor into the fields of enterprise and responsibility, and surrounds them with the utilities and beauties of life; it opens to the intellect the realms of thought, and leads it through the galleries of art and science; it gives to the nation wealth for poverty, strength for weakness, and primacy for subordination; but not for one or all of these does the Republic open its treasury for the advancement of knowledge. It is solely as an act of self defence that the Government comes to the rescue of the schools. For this, if the proceeds of the sale of the public lands are insufficient, it has the right to pour out millions and dictate and control the method and the direction of their disbursement.

In this connection we should remember that the strongest defences of nations are not armies and navies, but the affections and patriotism of their citizens. A common pride in the achievements and a common faith in the character and destiny of the government are essential to its peace and perpetuity. Discordant creeds are the precursors of faction and dissolution. The schools are the nurseries of public sentiment, and should have but one curriculum of political philosophy and civil history. The past is admonitory of the future. To remove a cancer and leave its roots is not cure, but relief. The fatal hour is only delayed. In war he conquers whose principle survives the conflict of arms. If history is reversed, if treason and patriotism are transformed, if opposite theories of government are inculcated, and pride and shame interchanged in our sources of national thought, are we acting the part of a prudent regard for the welfare of posterity? Are we not holding a chalice of blood to the lips of our children, and is it playing the rôle of statesmen for our public men to shut their eyes and ignore such facts? Has our government no power to enforce, I do not say a uniformity of text books, but the inculcation of a common national sentiment and political philosophy in the schools?

I realize how difficult and delicate is the subject of which I speak,

but it is legitimate to the occasion, and it would be cowardly to blink it out of sight. I cherish no feeling of sectionalism and would utter no word of crimination; but I am sure it is not wisdom to allow great dangers to drift us in silence into irretrievable ruin, when there is no real ground of difference of theory or action, but only pride and prejudice. The irreconcilable antagonism between free and slave labor, from which sprang the divergent theories and sectional bitterness of our old time politics, having perished with the war, there is nothing left but habits of thought and wounded pride to withhold us from mutual regard and a cordial coöperation in all that can advance the prosperity and glory of the country. Neither can deny to the other honesty of convictions or courage in battle, and this rescues the dead of both sections from dishonor. Why contend longer over obstructions and dead issues? Credit and trade, labor and skill, civil power and the social amenities, are all paralyzed by this persistent rancor of sectional jealousy, surviving its causes for a score of years. Our respective industries would be strengthened and made lucrative by mutual confidence and the fraternal emulations of business. Property would appreciate and resources develop, science be quickened and literature enriched, private virtue become more sacred and social happiness more universal, if we should give less time to the differentia of politics and more to the essentials of life. So long as opposing theories as to the nature and later history of the Government shall be taught in the different States, so long there will be bitterness and vituperation in the press, angry debates and disgraceful scenes in Congress, and portents of more direful disasters in the future.

But the cure must come from without. The Ethiopian cannot change his skin, nor an insane man reverse his thoughts. If reason and self interest have lost their control in the States, there must be a supreme power that holds and moves them in their orbits, if we are a nation, that can reach and remove the causes of discontent and peril.

The census reveals the fact that a large percentage of the illiterates of the country are of foreign birth. Emigration has become the policy of European states, as a relief to their institutions from the strain beneath. Our country has been made the field into which the ignorance, poverty, and hate of these revolutionary masses have been poured. Like pent-up gases they become harmless, for the most part, when the pressure is removed; but, crippled in capacity and with nothing to tax, they crowd under the protection of Federal law into the States and fill their school-houses with children. It is but right, therefore, that the enhanced burdens thus thrown upon the property of the States, if they do their duty to the children, and which in the aggregate amount to millions, should be relieved by national aid. There must be a rapid and constant decline in the intelligence, capacity, and character of our population, if these teeming millions are left uneducated and unassimilated.

We do not often stop to consider what changes have taken place since our gates were thrown open to the world. The influx of the overcrowded

peoples East and West by the modern facilities of transportation could not be anticipated a century ago. This change necessitates corresponding changes in our internal policy. The schools must be multiplied and improved in methods and force, so as to keep pace with this drifting multitude, whose numbers outrun their means.

The failure to assimilate these millions, and bring them into full sympathy with our institutions and habits of thought, is already felt, especially in those great centres into which they have crowded in the largest numbers. It is not immigration or change we deprecate, but deterioration. The successive invasions of England were terrible visitations, but they poured fresh vigor and broader sentiments into the old Briton, from whose mixed blood has sprung the brawny liberty loving Englishman of history. With them there was a constant growth through their ages of battle. But our pauper immigrants are not Saxon or Norman invaders; and we fear a constant decline through our ages of trade. The children of these strangers within our gates must be made American in thrift and skill and in their political aspirations and pride; they must be lifted by knowledge above the control of party passion and be inspired with a personality that will not suffer them to be the tools of personal ambition; they must be made to apprehend the nature and genius of our institutions and to love the flag of the Republic as the symbol of freedom and power. Does the past justify us in the belief that the States will do all this? The age is characterized by broader views and quickened efforts in the cause of popular education. Governments have at last been forced to adopt it as the policy of success. Its power has been discovered in the productive force imparted to industry, in the triumphs of science, and in the achievements of war. Discoveries and inventions are the footsteps of its progress; it is recognized in the gift of the ballot and the subordination of leaders to the popular will; it is heard, not in the drum roll, but in the music of machinery; its growth is realized in the widened uses of literature and the utilities of art; lightning and steam are the contestants in its Olympiads, and it gathers its battle flags at Sedan.

While the statesmanship of Europe is pouring out millions in the rivalry of her systems of schools, shall we stand still to be swamped in the surf that rolls from her shores? To-day we are hardly abreast with England, France, and Prussia in the character and resources of our schools. And shall we be told that the Government must fold its arms with the shallow pretence of a want of power and leave this work exclusively to the States, which cannot realize or feel the responsibility of this magnificent competition of empires in the march of knowledge and the growth of mental power? The policy will be a cowardly and suicidal acknowledgment of impotency, and, if persisted in, we shall learn to our sorrow that an ignorant people is an inferior people in all the elements of national greatness. If the bill now pending before Congress is too narrow for either aid or incitement, let its gifts be enlarged to the

measure of our wants. The nation is not impoverished when it gives to itself. Revenues so bestowed will be a profitable investment. It is but casting bread upon the waters that will be found after many days.

We should be glad to help build the waste places made desolate by war, if only hereafter they may be allowed to blossom with the fruits of an intelligent industry and social peace. The day is not distant, I trust, when both the North and South will learn that the rivalries of labor and trade and the emulations of literature and science are more profitable than the squabbles of politics or the feeding of old fires that ought to be dead. Let us unite in the noble enterprise of making our country foremost in the march of intelligence, foremost in the dignity of power, and foremost in the purity of its civilization.

The national domain is the common property of the Republic, and should be used to promote the general welfare. We can conceive of no employment of the proceeds of its sale of more general and lasting utility, and none more honorable to a free, christian people, than its application to the building up of a permanent system of free schools that shall be adequate to supply the demands of the future. This is an essential condition of national stability and prosperity. No subject of legislation more urgently demands a liberal appropriation than this. It will be an irreparable misfortune if, in a scheme so grand in its nature and so far reaching in its influence, we come to a deadlock over the puerile conceit that any material or moral interest can suffer from a concurrent but carefully defined advisory control of popular education by the General Government. In this the interests of the State and nation are one, and coöperation may bring them more closely together. Nothing is demanded which can limit or subvert any valuable prerogative of State power. Enlarged intelligence imparts a clearer apprehension of rights and an enhanced power to defend them. Armies and navies are defences against foreign aggression, but school-houses are the natural and effective security of governments against the domestic faction and violence that are engendered in the homes of ignorance.

The people are the sovereigns and citizens of both the State and the nation, and can claim the right to be fitted for their political functions from both. When the first is unable to discharge its trust, the latter should come to its aid in a peaceful coöperation. But when a State wilfully neglects to provide the means of knowledge for the poorest and humblest of its children, the supreme power of the nation possesses, beyond a reasonable doubt, the right to intervene in the interest of national intelligence, and provide, in such way and by such agents as Congress may judge best, for the education of the children of its neglected citizens. But we will not dwell upon this, for the question to-day before the American people is rather one of patriotism than one of right. The call is not to the defence of a prerogative, but to the discharge of an imperative duty. National inferiority and ultimate anarchy or despotism are the inevitable fruits of popular ignorance, that cannot

discern the real interests or the conditions of safety and prosperity to the country. School-houses have done more for the German Empire than military academies for France or great universities for England. Industrial success, military power, political superiority, intellectual achievements, and national character, all have their springs in high popular intelligence. Our destiny as a republic and our place in the march of civilization are involved in the maintenance or failure of a system of free universal education.

The paper excited animated discussion, in which many of those present participated.

Dr. PHILBRICK referred to the interest which Presidents Grant and Hayes had manifested with respect to national aid for education, dwelt upon the favorable progress of public sentiment as shown in the attitude of Congress, and expressed his conviction that the time had come for urging the matter.

Mr. NORTHROP, of Connecticut, admitted that his views had changed within a few years, and he believed the present conditions of the country warranted national aid for the support of education.

Mr. NEWELL, of Maryland, deprecated any interference on the part of the General Government with the local management of school affairs, but was deeply impressed with the need of national aid, especially in the work of extending education through the South. While the southern people are anxious to educate their masses, the blacks as well as the whites, he knew that they are not able to bear the expense.

President ANDREWS, of Marietta College, dwelt upon the distinction between national aid and national control. He hoped that the Burnside bill would not pass in its present form, but that the States would receive help according to their illiteracy.

Mr. MOWBY, of Rhode Island, believed that the power and influence of the National Government should be exercised within proper limits in the interests of education, and he desired the passage of the Burnside bill as a measure of great public utility.

Mr. MARBLE announced that the hearing of the reports of the committees was in order.

Mr. SMART, chairman of the committee to memorialize Congress, said that the committee were not prepared to report yet.

It was voted to leave this matter to the further consideration of the committee, and it was authorized to attach the names of the members to the memorial.

The committee on the unification of school statistics was also continued.

By invitation FREDERICK A. TALCOTT, of the world's fair committee, addressed the meeting and presented the claims of the fair, asking the coöperation of the teachers in making a fine educational display. He was followed by Ex-Governor Crawford.

The following resolutions were adopted :

Resolved, That the members of the National Superintendents' Association, now assembled, have heard with pleasure the statements in regard to the forthcoming world's fair of 1883, which have just been made by the gentlemen representing the commission, and that in response thereto we hereby pledge our hearty support to this great enterprise. We pledge also our best endeavors to make an exhibition of our educational products at the fair which shall form one of its most interesting and profitable features.

Resolved further, That the executive committee of the United States international commission be hereby requested to place the educational exhibit of the world's fair of 1883 on an equality of rank with the other great sections of the exhibition, and that a separate department be created in which all the educational products exhibited by institutions, States, and nations may be placed.

Mr. WILSON, of Washington, chairman of the committee on resolutions, submitted the following resolutions, which were adopted :

Resolved, That the thanks of the Department of Superintendence of the National Educational Association are due and are hereby tendered to Superintendent N. A. Calkins and the friends of education of New York associated with him, for the admirable arrangements made for the present meeting and for the elegant and bountiful entertainment provided for the members on Wednesday evening.

Resolved, That the thanks of the department are due and are hereby tendered to the president of the College of the City of New York, the president of the Normal College, and the superintendent of the Museum of Natural History for cordial invitations to visit their respective institutions.

Resolved, That the thanks of the department are due and are hereby tendered to the proprietors of the Grand Central Hotel for the excellent accommodations afforded the members at special rates.

Dr. WICKERSHAM moved that the association reiterate its former opinion in regard to national aid to education. Carried.

Mr. MOWBY announced the next meeting of the American Institute of Instruction.

The department then adjourned sine die.

CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 2-1882.

PROCEEDINGS OF THE DEPARTMENT OF SUPERINTENDENCE OF
THE NATIONAL EDUCATIONAL ASSOCIATION AT ITS
MEETING AT WASHINGTON, MARCH 21-23, 1882.

WASHINGTON:
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1882.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, June 10, 1882.

SIR : I have the honor to present the following papers for publication. The topics are specially pertinent to the present condition of educational discussions. The essays and papers are by some of our most thoughtful and able educators. Appearing in this form they have the advantage of carrying with them the opinions and comments of other experts. Their present publication will greatly relieve demands upon the Office.

I have the honor to be, very respectfully, your obedient servant,
JOHN EATON,
Commissioner.

The Hon. SECRETARY OF THE INTERIOR.

Publication approved.

H. M. TELLER,
Secretary.

NATIONAL EDUCATIONAL ASSOCIATION.

DEPARTMENT OF SUPERINTENDENCE.

MEMBERS IN ATTENDANCE.

SUPERINTENDENTS.

Hon. John W. Akers, State superintendent of public instruction of Iowa, Des Moines.

Hon. H. Clay Armstrong, State superintendent of education of Alabama, Montgomery.

Hon. J. W. Bartch, superintendent of schools, Shenandoah, Pa.

Hon. John M. Bloss, State superintendent of public instruction of Indiana, Indianapolis.

Hon. B. L. Butcher, State superintendent of free schools of West Virginia, Wheeling.

Hon. R. L. Carne, superintendent of schools, Alexandria, Va.

Hon. Geo. F. T. Cook, superintendent of colored schools, Washington, D. C.

Hon. Varnum B. Cochran, State superintendent of public instruction of Michigan, Lansing.

Hon. V. G. Curtis, superintendent of schools, Corry, Pa.

Hon. U. W. Cutts, superintendent of schools, Orange, N. J.

Hon. D. F. De Wolf, State commissioner of common schools of Ohio, Columbus.

Hon. J. W. Dickinson, secretary of State board of education of Massachusetts, Boston.

Hon. John A. Dix, superintendent of schools, Elizabeth, N. J.

Hon. G. T. Fletcher, superintendent of schools, Augusta, Me.

Hon. Aaron Gove, superintendent of schools, Denver, Colo.

Hon. George Howland, superintendent of schools, Chicago, Ill.

Hon. Henry Houck, deputy State superintendent of public instruction of Pennsylvania, Harrisburg.

Hon. H. S. Jones, superintendent of schools, Erie, Pa.

Hon. Wm. A. Lindsey, deputy State superintendent of public instruction of Pennsylvania, Harrisburg.

Hon. A. P. Marble, superintendent of schools, Worcester, Mass.

Hon. M. A. Newell, State superintendent of public instruction of Maryland, Baltimore.

Hon. J. A. Nichols, superintendent of schools, Yonkers, N. Y.

Hon. Birdsey G. Northrop, secretary of State board of education of Connecticut, Hartford.

Hon. Gustavus J. Orr, State school commissioner of Georgia, Atlanta.

Hon. John C. Scarborough, State superintendent of public instruction of North Carolina, Raleigh.

Hon. Wm. H. Shelby, superintendent of schools, York, Pa.

Hon. Henry E. Shepherd, superintendent of schools, Baltimore, Md.

Hon. Thos. B. Stockwell, State commissioner of public schools of Rhode Island, Providence.

Hon. Hugh S. Thompson, State superintendent of education of South Carolina, Columbia.

Prof. F. N. Thorpe, superintendent of schools, North East, Pa.

Hon. J. Ormond Wilson, superintendent of schools for the District of Columbia, Washington.

Hon. Henry A. Wise, assistant superintendent of schools, Baltimore, Md.

Hon. Allen Wright, superintendent of schools of the Choctaw Nation, Indian Territory.

MISCELLANEOUS.

C. W. Bardeen, editor School Bulletin, Syracuse, N. Y.

Dr. Henry Barnard, Hartford, Conn.

Dr. J. S. Billings, Assistant Surgeon General United States Army Washington, D. C.

Jas. H. Blodgett, Rockford, Ill.

Prof. J. P. K. Bryan, Charleston, S. C.

Rev. A. W. Burr, principal of Hallowell Classical Academy, Hallowell, Me.

J. E. Bushnell, New Haven, Conn.

Rev. J. W. Chickering, Washington, D. C.

Adolf Cluss, architect, Washington, D. C.

Dr. Cochran, Staunton, N. J.

Hon. W. A. Courtenay, mayor, Charleston, S. C.

Hon. J. L. M. Curry, LL. D., general agent of the Peabody education fund, Richmond, Va.

Hon. Edward Danforth, Elmira, N. Y.

Hon. J. Dent, commissioner of the District of Columbia, Washington, D. C.

Wm. C. Dodge, esq., member of school board, Washington, D. C.

Rev. S. Domer, Washington, D. C.

Mrs. Sarah B. Earle, Worcester, Mass.

Gen. John Eaton, United States Commissioner of Education, Washington, D. C.

- Prof. J. Enthoffer, Washington, D. C.
William H. Gardiner, esq., Portsmouth, N. H.
Dr. W. W. Godding, Superintendent of the Government Hospital for the Insane, Washington, D. C.
Dr. J. M. Gregory, Urbana, Ill.
Prof. G. Stanley Hall, North Somerville, Mass.
Hon. Dexter A. Hawkins, New York.
Hon. J. W. Hoyt, governor of Wyoming, Cheyenne.
Rev. Sheldon Jackson, D. D., New York.
Geo. T. Littlefield, esq., Boston, Mass.
B. G. Lovejoy, esq., member of the school board, Washington, D. C.
H. G. McCall, Montgomery, Ala.
Rev. A. D. Mayo, D. D., Boston, Mass.
Gen. R. D. Mussey, Washington, D. C.
Prof. C. C. Painter, Fiske University, Nashville, Tenn.
Rev. W. W. Patton, president of Howard University, Washington, D. C.
Hon. J. D. Philbrick, LL. D., Boston, Mass.
Mrs. Louise Pollock, principal of the National Kindergarten, Washington, D. C.
Miss Susie Pollock, Fröbel Institute, Washington, D. C.
Rev. A. T. Porter, D. D., Charleston, S. C.
Rev. J. E. Rankin, D. D., Washington, D. C.
Zalmon Richards, Washington, D. C.
J. W. Schermerhorn, New York.
W. E. Sheldon, editor Primary Teacher, Boston, Mass.
Dr. Charles Smart, United States Army, Washington, D. C.
Hon. J. H. Smart, Indianapolis, Ind.
Justin H. Smith, agent for Scribner & Co., New York.
J. T. Smith, Warwick, R. I.
Lyndon A. Smith, esq., Norwich, Vt.
Prof. H. C. Spencer, principal of the Spencerian Business College, Washington, D. C.
Gen. E. Whittlesey, secretary of Board of Indian Commissioners, Washington, D. C.
J. M. Wilson, Washington, D. C.

PRELIMINARY MEETING — TUESDAY EVENING.

WASHINGTON, *March 21, 1882.*

A preliminary meeting of the members of the Department of Superintendence was held in the red parlor of the Ebbitt House at 8 P. M., for the purpose of perfecting arrangements for the sessions which were to be held on the subsequent days, pursuant to a call issued March 1, 1882.

The president, Hon. W. H. Ruffner, was absent. On motion of Mr. NEWELL, of Maryland, Hon. T. B. Stockwell, State commissioner of schools of Rhode Island, was chosen president pro tempore. The secretary, Hon. H. S. Jones, was in attendance; and an arrangement was made by which the proceedings should be reported and prepared for publication by Mr. J. E. Rockwell, stenographer.

Mr. WILSON offered the following resolution; which was adopted:

Resolved, That an executive committee consisting of three members of this department, whose duty it shall be to arrange and report the programme of papers and business for this meeting, be appointed by the president pro tempore.

The Chair named as this committee Messrs. Wilson, of Washington, Orr, of Georgia, and Howland, of Chicago.

General EATON said that the question of national aid to education now before Congress was, he believed, one which should have the special attention of this association, and, while favoring no particular bill, he hoped that members would do all in their power to bring about some suitable legislation during the present session.

Rev. A. D. MAYO spoke of the necessity of this aid in the South, owing to its impoverished condition. Dr. ORR referred to the need of immediate help in his State (Georgia) because of the vast amount of illiteracy there. Mr. ARMSTRONG, of Alabama, spoke of the amount expended in Alabama for schools (\$410,000) during the last year. The people are anxious to do everything possible, but need help.

Mr. NORTHROP made pertinent remarks on this subject; and was followed by Colonel THOMPSON, of South Carolina, who spoke of the development of the public school system in the State which he represented.

Professor PAINTER, of Nashville, read a memorial which he had prepared regarding national aid; and Mayor COURTENAY, of Charleston, made some statements in regard to the taxes imposed for the support of schools in his city. He concluded by saying that it now took four years to put up a school-house there, and that three more buildings were wanted at once.

On motion of General EATON, the executive committee was instructed "to select a committee on the subject of national aid, to prepare resolutions and present this matter in behalf of this association before the joint meeting of the congressional committees on education and labor."

The subject of national aid was further discussed by Messrs. NORTHROP, FLETCHER, and MAYO; and a motion made by Mr. SHELDON was passed, providing that the committee be requested to consider the distribution of the moneys with a view to determining in what way it may best be done through the existing school officers of each State.

The department then adjourned to meet in the lecture room of the Congregational Church on the following morning.

FIRST SESSION—WEDNESDAY MORNING.

WASHINGTON, *March 22, 1882.*

The meeting was called to order by Mr. STOCKWELL, president pro tempore, and was opened by prayer by Rev. J. E. RANKIN, D. D., of Washington.

Mr. WILSON, from the executive committee, reported the following order of exercises for the morning session:

The information necessary to determine the merits of the heating and ventilation of a school building, by John S. Billings, surgeon, United States Army.

On the chemical examination of air as applied to questions of ventilation, by Captain and Assistant Surgeon Charles Smart, United States Army.

Concerning obstacles in the way of better primary education, by Hon. H. S. Jones, superintendent of schools, Erie, Pa.

City systems, by Hon. John D. Philbrick, LL. D.

Chairs of pedagogy in our institutions for superior instruction, by Prof. G. Stanley Hall, Cambridge, Mass.

The attention of the members of the department was first called to the presentation of the following paper by JOHN S. BILLINGS, surgeon, United States Army:

THE INFORMATION NECESSARY TO DETERMINE THE MERITS OF THE HEATING AND VENTILATION OF A SCHOOL BUILDING.

The question as to the best means of heating and ventilating school buildings is one of great interest, and one which not infrequently comes before me for consideration in the form of an inquiry as to whether the heating and ventilating arrangements of some given building are satisfactory. Unfortunately, when I am questioned about it, it is usually after the fashion in which the soothsayers were questioned about Nebuchadnezzar's dream. You will remember that they were asked not only to furnish an interpretation of the dream, but to describe the dream itself; and in like manner I am often asked for an opinion as to the sufficiency of the ventilation of a building without being furnished with the necessary data upon which alone an intelligent opinion can be based. I must confess that there seems to be no special difficulty in obtaining opinions under such circumstances, as most people seem to be quite ready to answer as to whether a given school, or all the schools of a given place, are well heated and ventilated or otherwise; and I have no doubt that most of those present have views more or less definite as to the

relative value of certain so-called systems of heating and ventilation which they have seen in action. While I do not wish in the smallest degree to express doubts as to the value of these opinions to those holding them, I must say to you that for scientific purposes and for the satisfaction of other people they are unfortunately not of much use. What is wanted for scientific purposes is, not the opinions, but the facts upon which the opinions are based; and the purpose of my remarks is to indicate as briefly and clearly as possible some of the facts which it is most important to ascertain to enable one to judge of the merits of the ventilation of a given place. These facts may be divided into two classes: first, those which may be ascertained by examining the building itself while the school is in operation; and, second, those which cannot be known by a single observation, but only from a series of them; in other words, from records. To the first class belong location, exposure, plan, dimensions, materials, workmanship, air space, air supply, air distribution, number of persons, necessary and unnecessary contaminations, character and sufficiency of heating apparatus; to the second belong records of the results on the health of pupils and teachers, records of temperature, and records of cost.

Let us consider each of these points briefly.

The location and exposure of a school building are of importance in connection with its heating and ventilation, partly in relation to the purity of its air supply and partly because the winds have a much greater effect upon the movements of the air *within* a building than is ordinarily supposed; and this is especially the case in a building constructed of ordinary brick and mortar, with common plastered walls, not painted, papered, or calcimined, which is the case with our ordinary school buildings. In a building of this kind, which is freely exposed to a strong wind, there is a very decided movement of air through the windward side, and a corresponding tendency to an exhaust through the opposite side. This tendency is sometimes so strong that the openings on the leeward side which were intended for inlets of fresh air to the heating surfaces have their action reversed and will be found acting as outlets, in which case it is by no means impossible that what were intended to be the foul-air flues for the building will be found to be acting as inlets, as I have actually seen the case in a school building I examined.

It is necessary that the location and exposure should be distinctly noted, including the altitude of the site, the distance of surrounding buildings, the prevailing winds, &c. The vicinity of marshes, pools of stagnant water, and buildings in which trades and manufactures liable to give forth offensive emanations are situated, should also be noted. The plan of the lot should be given, and upon it should be located the building, giving dimensions, so as to indicate distinctly the amount of ground not covered by the building and the location of drains, sewers, and cesspools outside the building but connected with it. The next

thing is to prepare copies of the floor plans of the building, with a section showing the height of the several stories. It makes little difference how rough these plans may be, provided the dimensions are distinctly indicated upon them, with the location of all doors, windows, heating apparatus, flues, and registers for both fresh and foul air. The dimensions of all windows, doors, and flues should be noted; also the existence of transoms over the doors. The amount of clear opening in the registers for each flue should be indicated, together with the number of desks and the number of children actually in the room at the time of making the observation. The length of time which these children have been in the room since the last recess should also be noted. The temperature of the outer air and that of the room near the floor and near the ceiling, within two feet of the inner wall and in the same position relative to the outer wall, should be taken; also the temperature of the incoming and outgoing air. This is necessary to enable one to judge of the distribution of heat in a room, and to a certain extent is a very good index of the distribution of the fresh air. It is also desirable that the amount of moisture in the air as determined by the hygrometer should be observed and recorded, similar records being taken of the amount of moisture in the external air. The next step is to ascertain the amount of air which is actually entering and leaving the room by the special openings and flues provided for that purpose. This is to be done by means of an instrument called an anemometer, one of which I have on the table before me. This is a delicate and fairly accurate instrument, made by Casella, of London. It will indicate a current of air having so low a velocity as one foot per second, and registers by a series of dials, similar to those on a gas meter, the number of feet of air which have passed through the wheel. The cost of this instrument is about \$25, and I would strongly recommend that in cities where there are several schools the general superintendent, or other inspecting officer, should be provided with one of these instruments and should accustom himself to note the amount of work which the ventilating apparatus in the several buildings are actually performing. In making such observations it will be found that there is a great difference in the amount of air passing through the several flues, dependent on the direction and force of the wind, and also to a great extent as to whether the doors, and the transoms over the doors, of the school rooms be opened or closed. In a school building of several stories, where the doors open into a large central hall containing a staircase, which is a common plan of construction, it will usually be found that a large proportion of the change of the air in the school rooms is effected through the doors and transoms, and outward and inward currents will be found in the doorways near the floors and at the top of the openings.

It would be a great error to suppose that only the amount of fresh air indicated by the anemometer in the flues provided for that purpose is actually entering the room. Were this the case, a great majority of

school rooms would soon become uninhabitable. As a matter of fact, a very large amount of fresh air enters directly through the walls, another part around the windows and through cracks at the junction of the floor and wall, and a third source of supply comes from the central hall, as just indicated.

Although this anemometer is a comparatively simple instrument, there are, nevertheless, one or two precautions necessary in its use, to which it may be well to call attention. In the first place, the accuracy of the instrument should be carefully tested, not only when it is first received, but at intervals subsequently. The reason for this is that the plates of the little windmill are very delicate and easily bent from their proper position, and a very small displacement has a marked effect upon the registration of the instrument. The usual mode of testing these instruments is to swing them in a circle at the extremity of a bar of a known length and note the registration. A simpler method, however, and one by which equal accuracy may be obtained, is to walk rapidly a measured distance, say 200 feet, in a covered space, where there are no currents of air, holding the instrument at arm's-length above the head, or, better, attached to a short rod, with the plane of the wheel perpendicular to the direction of the movement. This mode of carrying the anemometer for this test is necessary, since if the instrument be held in front of the breast, and a foot or two away from it, it will be found that it will register much less than it should do, owing to the obstruction of the free passage of the air through it and the creation of an eddy. It is difficult to ascertain precisely the amount of air flowing through a register by the use of the anemometer, if the instrument be merely held in front of the register. The amount of air passing through the different parts of the register varies, and the irregular ornamental iron-work produces currents and eddies which make it very difficult to obtain a satisfactory average. The best way is to cover the entire register with a sort of truncated cone, made of light board or pasteboard, freely open at both ends, and having the large end fitting close against the wall over the register, the smaller end having, for convenience of calculation, an area of one square foot. This cone should be from one foot to 18 inches high.

I must warn you against the error of supposing that all the air coming from the top of a heating apparatus placed in the room itself and connected with the outer air is to be counted as fresh air supply. In all cases a very considerable amount of this air is derived from the room itself, and rolls up along the side of the heating apparatus, be it ventilating stove, steam coil, or what not, and aids in forming the current which the anemometer shows to exist over the radiator. In all such cases the true amount of air which is entering from without can be found by testing the current with the flue from the external air closed and then open, and noting the difference.

Nor can the amount of air entering at the inlet flues or found to be

passing out of the outlets be taken as an absolute indication of the amount and character of the ventilation of a room, for it is possible to pass a very large amount of air through a room without really ventilating it, and this will always be the case where the air is admitted at a high temperature and allowed to escape through openings at or near the top of the room. It is necessary therefore to obtain some information as to the distribution of the fresh incoming air as well as its quantity. This information is to be obtained partly by the use of visible vapors, or light substances which will indicate the direction and force of the air currents, and partly by chemical analysis.

Of the various means of showing the direction of air currents one of the simplest and easiest of application is by the fumes of freshly generated muriate of ammonia produced by bringing the vapors of the common liquor ammonia of the shops in contact with the vapor of hydrochloric or muriatic acid. These fumes can be inhaled without discomfort or injury; in fact, they are sometimes used for the treatment of chronic inflammatory troubles of the air passages. The cost of their production is very small and they can be generated in any amount desired. Even these, however, give but a very partial idea of the distribution of the air within a room. This can only be ascertained by taking samples of the air at different points in the room and subjecting them to chemical examination. This examination is usually confined to testing the amount of carbonic acid present, and the methods of doing this will be demonstrated before you by Dr. Smart. I wish only to emphasize here the fact that carbonic acid gas in the proportions in which it is found in the worst-ventilated school rooms is not in itself poisonous, offensive, or harmful. The really dangerous and offensive impurities are the organic matters thrown off in respiration, and as these increase the carbonic acid increases in a like proportion. Now, the testing for these organic matters, in a quantitative point of view, is a very difficult and delicate process, whereas the examination for carbonic acid is, as you will see, comparatively simple; hence, the chemical test of the quality of the air is made by the analysis for carbonic acid, which is taken as an index for the really harmful impurities existing. Having obtained these data with regard to air space and air supply, and what may be called the necessary contaminations with which the ventilation system has to deal, that is to say, the number of persons who vitiate the air, the next point to be attended to is what may be termed the unnecessary contaminations of the air, due to defects in the house drainage, to emanations from wet and soiled outer wraps and clothing, to emanations from the soil, and to noxious and infectious gases from the heating apparatus.

If the water closets are placed in the basement of the school building, in a room having a cemented floor, for purposes of cleansing, it is very common to have this floor slightly sloped towards one point and at that point to place an opening into the sewer so that the whole floor and

closets may be washed by means of a hose, and the resulting water readily gotten rid of. This opening to the sewer is usually guarded by means of what is called a bell trap, which is, however, in nine cases out of ten found to be totally ineffective. In two out of three cases in which I have recently examined these arrangements in Washington schools, I found a strong current of air from the sewer passing up from this so-called trap into the basement, from which it passed freely up the staircase into the main hall, and became a part of the source of supply for the school rooms, as I have already explained.

If the closets are placed within the building, it should be noted whether the soil pipe is properly ventilated, that is to say, whether the pipe into which the closets discharge is continued up through the roof and left freely open at the top, and has also a fresh air opening into it from the outside of the building. If the closets be outside of the building the point of discharge of their ventilation pipe should be noted, as to whether it is above or below the level of the windows of the upper rooms in the main school building. A very frequent source of unnecessary contamination of the air supply of a school building is connected with the heating apparatus. This may occur in two ways: first, as the heating apparatus is usually placed in the basement, which communicates freely by stairways with the upper hall, any checking of the draft in the fire causing escape of gases from the furnace into the basement will contaminate its central air supply. This is liable to occur, whatever may be the form of heating apparatus. The second mode of contamination is by the air of the basement, rendered impure in various ways, passing into the fresh air ducts through cracks, leaks, &c. This is especially liable to occur in systems of heating by hot air furnaces, and the fittings of these should be carefully examined.

Into the merits of the various systems of heating employed I do not propose to enter; I merely wish to call attention here to the fact that the great deficiencies in them all are the want of sufficient heating surface and the want of some means of control by which a free supply of air may be permitted to enter without having it all pass over the heating surface. As a rule, in all school buildings warmed by the so-called methods of indirect radiation, that is, by hot-air furnaces or by steam coils placed in the basement, the air enters the room at a comparatively high temperature, too high, in fact, for either comfort or health. The only way of controlling the temperature of the room in the way of reduction is to partially or entirely shut off the air supply by closing the register. No heating or ventilating apparatus which operates in this manner can be considered satisfactory. In all cases it should be possible by the operation of a valve to permit more or less cold air to mingle with the heated air, and this should be done in such a way that the temperature of the air admitted into the room can be regulated without at all diminishing its quantity.

Thus far I have been speaking simply of those matters connected

with a building which can be noted by examination upon a particular day, or, at the most, upon two or three successive days. This, however, will not give a complete idea as to the merits of the system of heating and ventilation of a building. This can only be obtained by a series of records of the effects produced by it under various circumstances of external temperature, moisture, wind, &c., the amount of coal burned, and the effects upon the health of the pupils. Such records are very rarely kept. If they were made the rule, and superintendents and teachers were expected to see that they were regularly and accurately furnished, the effect would be to settle a great many controversies as to the merits of this or that system of heating and ventilation, which controversies at present rest upon opinions merely; and they would also do much to induce the proper authorities to provide satisfactory means of ventilation in the numerous cases in which they are now wanting. Take, for instance, the records of temperature. These should be taken twice in each school session, once just as the school assembles, and again just before it is dismissed. They should be taken in different parts of the room: at the entrance of the fresh air, at the point of discharge of the foul air, at the level of the children's heads, and on the floor. They should be taken, moreover, not from the ordinary cheap thermometers, as purchased in the shops, but from thermometers which have been tested and which are accurate to within at least one degree. It would be still better if these thermometers included both the wet and dry bulb thermometers, so as to obtain the moisture of the air as well as the temperature. The most important record, however, is that which relates to the health of the pupils. It seems at first sight somewhat curious that there should be so little scientific evidence obtainable as to the effects of overcrowded, overheated rooms, and impure air of various kinds upon the health of school children. I have repeatedly found, in going into school rooms, where the air was so impure as to be decidedly offensive to the sense of smell to one entering from the outer air, and where the carbonic acid ranged from twenty to thirty parts in ten thousand, that upon inquiry the children, or at least a great majority of them, made no special complaint of ill-health, nor was it possible to show from their condition, as observed, that the foul air was having a bad effect upon them. This want of evidence is due in part to the great power which the childish organism has of accommodating itself to circumstances, and in part to the fact that the evil effects of impure air are remote rather than immediate, and show themselves at periods from one to perhaps twenty years after the exposure.

It is so highly desirable that a systematic record should be kept of the health of children and teachers and the results which would be obtained from a comparison of such records for a number of school buildings in different cities would be so valuable that it certainly seems worth while to make at least an attempt to obtain them. I am quite aware of the difficulties in the way of making such records complete

and accurate in all respects. Neither the statements of the children nor in many cases of the parents or guardians can be relied upon as to absence on account of sickness, and more especially as to the kind of sickness; nevertheless it does seem possible that when a child is first admitted to a public school a record could be made of its physical condition, including powers of vision and hearing, height, weight, &c., and that thereafter all absence from school on account of alleged sickness should be so noted, as well as the character of the illness, so far as this can be ascertained. In this connection, I would invite your attention to the means used in some investigations undertaken by Prof. Henry P. Bowditch, of Harvard University, respecting the laws of growth in children as shown by investigations made upon school children in Boston.

These data are collected upon cards, of which specimens can be obtained from Professor Bowditch, and of which the following is a copy:

FOR SUCCESSIVE SETS OF OBSERVATIONS—FEMALES.

Record all linear measurements at nearest centimetre; all weights, at nearest kilogram.

Name (or initials), ———; birthplace, ———.

	1882	1883	1884	1885	1886	1887
Age.....y. m..						
Height, without shoes.....cm..						
Sitting height.....cm..						
Finger reach.....cm..						
Chest girth, inspire.....cm..						
Chest girth, expire.....cm..						
Weight (in ordinary indoor clothes).....kilo..						

Nationality of father, —; mother, —; paternal grandfather, —; paternal grandmother, —; maternal grandfather, —; maternal grandmother, —.

Color of eyes, —; color of hair, —.

Occupation (of husband if a married woman) (of parents if a minor), —.

Name (or initials) of observer, —.

Reverse side.

The height is to be taken in an upright position, without shoes, the feet being close to the measuring rod. If, in the case of infants, it is necessary to measure in a recumbent position, the fact should be stated.

The sitting height is the vertical distance between the top of the head and the surface upon which the individual is seated.

The finger reach is the distance between the tips of the middle fingers when the arms are extended horizontally, the breast and arms being in contact with a wall. The chest girth should be taken after a forcible inspiration, and also after a forcible expiration, the measuring tape being passed horizontally round the chest on a level with the nipples, over only a single garment. This measurement is to be taken only on men and children.

The weight is to be taken in ordinary indoor costume. In the case of children less than ten years of age, it is to be recorded at the nearest tenth of a kilogram.

The color of the eyes is to be recorded as blue, gray, brown, or black.

The color of the hair is to be recorded as fair, golden, red, brown, black, or gray. If gray, record also, if possible, the original color.

The nationality is determined by the place of birth.

The occupation should be given so as to indicate as far as possible the degree of comfort in which the individual lives.¹

Separate colored cards are furnished for males and females, and also distinct colors for a single set of observations and for successive sets of observations.

I think it greatly to be desired that, if possible, at this meeting a committee should be appointed to take into consideration this matter of systematically recording the health of children and to suggest forms of records.

I have satisfied myself that such an account could be kept by the teachers with comparatively little trouble and I feel assured that the results would be of great value. In fact, what we need above all things at present, as regards our public school buildings, is a system of accounts which shall show, not only the cost of their construction and repairs, which is merely one side of the question, but their effects upon the health of the children and teachers who are to spend no inconsiderable time in them. That a comparison of such records would lead to changes and improvements in the plans and method of construction of school buildings which would be in the direction of true economy as distinguished from cheapness there can be little doubt.²

The second paper laid before the meeting was read by Dr. CHARLES SMART, United States Army, and was as follows:

THE CHEMICAL EXAMINATION OF AIR AS APPLIED TO QUESTIONS OF VENTILATION.

The atmosphere of the earth has been examined repeatedly by chemists during the past hundred years. Specimens have been submitted to analysis from the city and the country, from the surface of the ocean and from arid plains, from high and low latitudes, from mountain tops, and even from heights reached by ballooning, and the results have always indicated a definite mixture of oxygen and nitrogen gases, with small quantities of accidental matters or so-called impurities which vary with the locality or the conditions affecting it. The oxygen, the active or vivifying agent according to the chemist and physiologist, is simply diluted by its admixture with the nitrogen which has no appreciable effect upon the animal economy. Twenty-one volumes of the former and seventy-nine of the latter form the aerial mixture; and the proportion

¹ See also article on Anthropometrical Methods, Tenth Annual Report of Massachusetts State Board of Health, 1879, p. 55.

² In the city of Oakland, Cal., regular reports of sickness in the public schools are furnished to the health department by the superintendent of schools. Those pupils who are absent from school three or more days consecutively on account of alleged sickness are reported as sick, and some interesting results and warnings are thus obtained. There should, however, be a distinction of sex and age in the reports from the schools in order to permit of comparisons upon these points.

is everywhere preserved, notwithstanding differing specific gravities, by the constant motion produced by cosmical forces, but especially by the power of diffusion or penetration into intermolecular areas which gaseous molecules are known to possess.

Among the so-called accidental matters or impurities, carbonic acid is notable, not only as existing in largest quantity and as being universally present, but as bearing a tolerably constant proportion to the bulk of the main constituents, except in the immediate vicinity of local sources of its production. So constant is its relative figure that even chemists have ceased to regard it as accidental, and have accepted it as forming an essential in the constitution of the atmosphere, which is therefore represented in percentages by oxygen 20.96, carbonic acid .04, and nitrogen 79.00.

The carbonic acid forms .04 per cent. of the volume of the atmosphere, or, in other words, 10,000 volumes of the air contain 4 volumes of the acid. Within limits, however, its quantity is subject to frequent variations. During the air examinations made recently in connection with the report on the condition of the public schools in this city, the external air collected on G street in front of the office of the National Board of Health yielded generally a little over or a little under 4 volumes in 10,000, but on one occasion 4.9 volumes were obtained and on another 2.2 volumes. Two years ago I found similar variations in the air of the Capitol grounds. Several years ago Wetherill, in his report on the ventilation of the House of Representatives, records the external air as unusually free from carbonic acid, from 2 to 3 volumes per 10,000. I examined the air on the Rocky Mountains in the spring of 1874 and found a steady and gradual decrease day by day from 4.5 to 2.6 volumes. Some points have been defined concerning these tides in the carbonic-acid volume, especially by the observations of De Saussure, but practically no one can as yet predicate from one experiment the probabilities as to the next day's results.

Ammonia is another of the accidental substances. It is evolved from nitrogenous organic matter during the putrefactive process, but probably its main source is the inorganic nitrogen of the atmosphere itself, which is combined with ammonia and nitrous and nitric acids by electric agency. Its quantity is variable, but 1 milligram in a cubic metre is a not unusual amount. This is equivalent to a grain in about 23,000 cubic feet. Rain washes the ammonia from the air to the surface of the earth, and in the rainfall it can always be detected and measured. Its quantity is increased during thunder storms. A figure frequently found in analyses is 5 milligrams per litre, which is equivalent to 1 grain in about 34 of our gallons. In dealing with a few cubic feet of air the ammonia is necessarily a very minute quantity, but when the annual rainfall over a tract of country is made the basis of the calculation, it becomes one of interest to the agriculturist.

Watery vapor is constant in its presence in the air, but so varying in its quantity as to be considered by many an accidental constituent.

The laws which govern its presence are known. The dew point can readily be determined by experiment or obtained by calculation from the difference between the dry and wet bulb thermometric readings, and the grains of aqueous vapor which the air contains per cubic foot, or which it would contain if saturated with moisture, can be estimated.

The air is also permeated with organic matter, at least all air near the surface of the earth; but while carbonic acid, water, and ammonia can be detected and measured with the utmost exactitude, little has been determined concerning the chemical constitution of the aerial organic matter. Nevertheless it is certain that of the organic matter of the air a large proportion is not only solid and particulate, but living. Putrescence, which was formerly regarded as a chemical action in which the oxygen of the air was chiefly involved, is now recognized as an incident in the life history of a species of micro-organism. The spores of fungi are also universally diffused and developed wherever are found the favoring conditions as to soil, moisture, and temperature. The microscope and what are known as culture experiments have demonstrated the existence of the aerial organisms and the conditions of their development and growth.

The air constituents which have been mentioned must, from a scientific point of view, be considered as individually essential to the constitution of the atmosphere: the oxygen as being vital to animals, its quantity being preserved by the evolution during vegetable growth and the equilibrium between the two kingdoms of nature; the nitrogen as being an inorganic supply, which is susceptible of advance to organization and life by the electric production of ammonia and the assimilation of that ammoniacal nitrogen by vegetable organisms; the carbonic acid as vital to vegetation, its quantity being preserved by the evolution from animal life and the retrogression of the carbon of dead organic matter during putrefaction; the ammonia as needful to the building up of organic tissues by vegetable life, which organic tissues when overtaken by death are returned to the ammoniacal condition by the action of the atmospheric micro-organisms; lastly, the watery vapor, without which desiccation would bring to an end the whole of these life actions in which the atmosphere participates.

This is the normal constitution of the atmosphere, and the object of ventilation is to furnish our houses, school rooms, and other artificial shelters with an air for respiratory purposes which shall not differ materially from this standard. Other gases and organic matters are sometimes present in certain specimens of air, but they are truly accidental, are circumscribed in their extent, and depend for their existence on local causes or conditions. The exhalations from the human lungs and skin which give the close, heavy odor to the air of an unventilated school room have been captured and put into the retort and test-tube, but the methods of dealing with them hitherto adopted have failed to give satisfactory information even as to their physical constitution. Are

they gases, liquids, or solids of ultra-microscopic size dissolved in or borne upon the cloud of watery vapor? The field is here open for investigation, but it is unlikely that much will be accomplished until the progress of science offers some new method, instrument, or reagent by which the subtle emanations may be examined. During dry seasons the air may be loaded with dust, which is a generic term including everything, organic or inorganic, light enough to be swept up by the air movements. From the imperfect combustion of coal the deleterious carbonic oxide may be evolved. Ground air may be drawn into ventilating currents and impair their usefulness by its excess of carbonic acid, while, if the soil is polluted, miasmatic influences may accompany the gaseous acid and undermine the health of the consumers. The unknown constituents of the sewer emanations, the exhalations which are connected with vegetable decomposition, and which are spoken of generically as malaria, and possibly the specific poisons of typhoid fever, cholera, and other diseases may sometimes infect the atmosphere. But these, although their study is fraught with important issues to the public, do not enter into the question of ventilation except in so far as concerns their absence from the ventilating supply.

When air of the normal constitution above described has been used for life purposes by a number of individuals in a closed room, its carbonic acid, aqueous vapor, organic matter, and ammonia are increased and its oxygen materially diminished. Any of these changes might be taken as the index of the change from normal quality in the air and hence as the index of ventilation. A tedious filtration is involved in the separation of the organic matter and an accurate method of estimating it has not as yet been developed. The aqueous vapor can be readily determined, but its quantity is liable to be increased by evaporating surfaces unconnected with deterioration of the air. Recently Dr. Angus Smith has been studying the condensation of the ammonia on glass plates as a ready method of testing the quality of the air, but although the ammonia, when collected, can be estimated with the utmost precision, the method of collection is faulty. Of late I have been filtering known volumes of air through Austrian glass wool, chiefly for the separation of organic matter, but incidentally for the condensation of the ammonia upon the fibres. The results are seemingly more affected by the hygrometric condition of the air than by the absolute amount of the ammonia present in it. The quantity of ammonia which adheres to the glass is neither the whole nor a definite fraction of the whole, but more or less, according to certain atmospheric conditions.

Satisfactory results can be obtained by determining the percentage of oxygen in the air; but the simplest and best method of ascertaining its deterioration by the action of respiration consists of an estimation of the quantity of carbonic acid present in a given volume of the air. Not that the carbonic acid is the special poison thrown out from the lungs during respiration — the organic exhalations are probably the most

active of the deleterious products—but the increase in the amount of the carbonic acid over that naturally present in the external air is a measure of the respiratory use to which the air has been applied and of its fitness or unfitness for further use. Carbonic acid, when in considerable amount, is believed to produce evil effects upon the system, but the languor and oppression, the headache and flushings, which result from deficient ventilation, are consequent rather on the deficiency of oxygen in the air, together with its organic foulness.

The carbonic acid is fixed and estimated by its affinity for the caustic earths lime or baryta, with either of which it forms an insoluble carbonate. The alkalinity of the caustic solution is known; the carbonic acid removes or neutralizes a portion of that alkalinity, and the loss is the measure of the carbonic acid which has effected the neutralization. The process originated with Pettenkofer. Its practical details are readily understood.

A solution of pure oxalic acid is made containing 2.864 grams per litre of distilled water. This strength is such that 1 gram or 1 cubic centimetre will neutralize as much caustic baryta as would combine with 1 milligram of carbonic acid. A baryta solution is then made which will correspond in strength to the acid solution, 1 cubic centimetre of the one neutralizing 1 cubic centimetre of the other. Practically they may not be of exactly equivalent strength, but the relationship they bear to each other must be ascertained and borne in mind during the subsequent calculations. The baryta solution is poured into a number of clean and dry two-ounce vials, which are corked securely and weighed. The total weight (bottle and contents) is marked upon the label of each bottle.

When a carbonic acid determination is to be made, the air is collected in a large, clean, and dry bottle or narrow-mouthed jar, the capacity of which is accurately known. The bottles which were used in the recent examinations contained about ten litres each. If the jar, as is not unfrequently the case, has a temperature different from that of the room from which the sample is to be taken, it must be permitted to stand for a few minutes until the difference has disappeared. A rubber tube connected with the nozzle of a bellows is then dropped into the jar, which is filled with the air to be examined, taking care that the air entering by the valve of the bellows is not contaminated by any direct respiratory streams from individuals around. The operator, of course, knows the capacity of the bellows and the number of strokes necessary to insure the change of air in the bottle. As soon as this is accomplished, one of the prepared baryta vials is carefully uncorked and its contents poured into the jar, which is then closed by an accurately ground stopper or tightly fitting rubber cork. The baryta solution is then shaken in the jar and made to flow all over the interior to promote its contact with the contained air. Generally a whitish turbidity or milkiness is developed during the shaking, but, to insure the thorough absorption

of the carbonic acid, it is customary to let the jar stand until next day before proceeding further with the investigation.

In the mean time the volume of air operated on is calculated from observations taken at the time the air was secured. The levels of the barometer and dry and wet bulb thermometers must be known and the quantity of baryta solution introduced into the jar. The last is obtained by reweighing the now empty vial. Its loss in weight gives the quantity in grams of the baryta solution employed, and this number, as cubic centimetres, has to be deducted from the known capacity of the jar. It is necessary, however, to express this air volume in the space which it would occupy when dry at zero Centigrade and under an atmospheric pressure of 760 millimetres of mercury, that the results of different experiments may be susceptible of comparison. Increased temperature expands the volume of a gas and increased pressure diminishes it, while the pressure of the watery vapor present must be taken into account. It is needless to particularize in these matters. The temperature observations will give the dewpoint, through which can be obtained from the observations of Regnault and others the pressure or tension of the aqueous vapor. If P represent this pressure, T the observed temperature in Centigrade degrees, B the barometric height in millimetres, and V the capacity of the jar minus the cubic centimetres of baryta solution introduced, the corrected volume will be equal to:

$$\frac{V (B - P) 273}{(273 + T) 760}$$

Next day the liquid contents of the jar are transferred to a small beaked flask, known as Schuster's alkalimeter, and the weight of the flask and its contents are noted, that the loss of weight may indicate the quantity used in the subsequent experiment. A small beaker has had weighed into it 10 grams of the oxalic acid solution—1 gram or 1 cubic centimetre of which is equivalent to 1 milligram of carbonic acid—and the acid solution has been colored red by the addition of a tincture of litmus. Into this the deteriorated baryta solution is dropped from the alkalimeter rapidly, until a haziness pervades the liquid, and then slowly, until one drop changes the color to a dark purple. The acid has been neutralized and the loss of weight suffered by the alkalimeter gives the quantity of the baryta solution used in effecting the neutralization. Let it be supposed, for example, that 60 grams of the solution were introduced into the jar, and that 30 grams of it are now required to neutralize the 10 grams of oxalic liquid; the total of 60 grams will be sufficient to neutralize only 20 grams of the test acid, while before exposure to the carbonic acid of the bottled air it was capable of combining with 60 grams. There has therefore been removed from its solution by the carbonic acid as much baryta as would neutralize 40 grams of the oxalic solution, i. e., 40 milligrams of carbonic acid were contained in the air operated on.

The experimental response to the question How much carbonic acid

in the corrected volume of air? is given in weight, but the relation of weight to volume is known. One milligram of carbonic acid occupies a little more than one-half of a cubic centimetre at zero Centigrade and under 760 millimetres of pressure. Multiplication by the factor .50685 will transform weight into volume, and a simple calculation will give the volumes of carbonic acid per 10,000 of the air examined. It must be remembered, however, that this volume of carbonic acid is not due to respiratory action, but includes that which is naturally present in the air. When the result of a contemporaneous experiment on the external air has been deducted, the remainder indicates the carbonic *impurity* of the air or that due wholly to the respiratory function.

The chemistry of the investigation ends here and gives place to calculations; but, before concluding by a reference to these, it may be well to illustrate two simple methods of approximating to the amount of carbonic acid. They are known as the "household" and "minimetric" methods.

The former is based upon the fact that when lime water is shaken up with air a certain amount of the precipitated carbonate must be diffused in the water before the eye can recognize the presence of the turbidity. The larger the percentage of carbonic acid in the air the smaller will be the volume of that air needful to cause a visible haziness. A stock of lime water is prepared by shaking up slacked lime with distilled water, permitting it to settle, and siphoning off the clear liquid for use; and a series of bottles are procured, ranging in capacity from 2 to 20 ounces, in which to make the experiments. The following table expresses the relation between the size of the bottle and the volumes of carbonic acid in the air according as a turbidity does or does not occur when half an ounce of the lime water is used.

If the number of volumes of carbonic acid in the air is smaller than in the last column of the table, the effect of adding the lime water will be to leave the mixture clear; if larger, the mixture will be turbid.

Size of bottle in fluid ounces.	Carbonic acid in volumes per 10,000 air.
20.6	3
15.6	4
12.5	5
10.5	6
9.1	7
8.0	8
7.2	9
6.5	10
6.0	11
5.5	12
5.1	13
4.8	14
4.5	15
3.5	20
2.9	25
2.5	30
2.0	40

If an 8 ounce bottle shows turbidity, the presence of more than 8 volumes is indicated; how much more, must be determined by a second experiment. Taking a $6\frac{1}{2}$ ounce bottle, the air is known to contain less than 10 volumes if no precipitate is developed. The carbonic acid can therefore be stated as constituting from 8 to 10 volumes per 10,000 of the air. But a third experiment with a bottle intermediate in size will correspondingly reduce the limits of uncertainty regarding the carbonic acid figure.

In the minimetric process half an ounce of baryta solution is introduced into a bottle the capacity of which is known (70 ounces in the present instance) and which is charged with the external air. This, when shaken, becomes turbid, and its turbidity is used as a standard in subsequent experiments. For purposes of comparison this standard solution is transferred to a $2\frac{1}{2}$ ounce bottle, similar in shape and color of glass to that in which the minimetric experiment is to be conducted, and the two ounces of external air which it contains are to be added to the capacity of the larger bottle, making in this case 72 ounces.

Half an ounce of baryta water is poured into a $2\frac{1}{2}$ ounce bottle which has been filled with the air to be examined. This is attached to an aspirator, or to what answers the purpose as well and is readily extemporized, a large bottle with a siphon and rubber connections. The baryta is shaken up with the air in the small bottle, and a second charge of two ounces introduced by withdrawing that volume of water by the siphon from the larger one. This is also shaken up, and, if no precipitate occurs, air is added as before by siphoning off water until a turbidity appears which matches the standard obtained from the external air. The same quantity of carbonic acid has been thrown down in both instances and the quantity of air employed in each case is known, so that the relation which the carbonic figure of the examined air bears to that of the atmosphere at large can easily be ascertained. If the external air which contributed this precipitate measured 72 ounces and the air which was passed through the test bottle 36 ounces, the latter sample would be recorded as containing two volumes of carbonic acid for one existing in the former, or 8 volumes per 10,000, on the assumption that the external air contained its average of 4 volumes.

Accuracy is not to be expected from these methods, but they are useful to indicate whether the air of a room is overcharged with respiratory products. We have simply to shake up the charge of lime water in an 8 ounce vial to know by the turbidity that the air is not as it should be.

Having found the carbonic impurity, or the total carbonic acid minus that existing in the external air, in the specimen under examination, we may inquire into the information which it furnishes regarding the ventilation of a school room or other apartment. What is the rate of inflow a minute which is indicated by the amount of carbonic impurity? To ascertain this it is needful to know the average rate at which carbonic

acid is eliminated from the person. This evolution varies according to conditions of rest or activity. Professor Parkes states the yield at from 12 to 16 cubic feet in 24 hours, or from .5 to .66 cubic foot per hour. Huxley gives 360 cubic feet as the volume of air expired daily, and as the air of expiration is known to contain 4 per cent. of carbonic acid, this is equivalent to an hourly production of .6 cubic foot. Other experimenters have arrived at similar results. I am not aware that any special investigation has been made into the evolution from children under school-room conditions, but in their absence .6 cubic foot may be accepted as a close approximation to the truth. This is a convenient number, as it corresponds with .01 cubic foot a minute. The capacity of the room must be ascertained and in exact calculations deduction should be made for the body bulk of the occupants and for the furniture. The time during which the deterioration has been going on is another factor which enters into the calculation.

The carbonic evolution .01 cubic foot per minute per person, multiplied by the number of minutes, gives the amount of the carbonic impurity generated. When this is divided by the carbonic impurity found by experiment in 10,000 volumes of air, the quotient multiplied by 10,000 will express in cubic feet the volume of air with which the respiratory products have been diluted. But as the air volume in the room has contributed to the dilution, its capacity has to be deducted from the total to obtain the amount of the inflow.

Thus, if the data consist of 50 persons, 50 minutes, 9,000 cubic feet, and a carbonic impurity experimentally found of 5 volumes:

$$.01 \times 50 \times 50 = 25.00 \text{ cubic feet of carbonic acid expired.}$$

$$\frac{25}{5} \times 10,000 = 50,000 \text{ cubic feet of air required for the dilution.}$$

$$50,000 - 9,000 = 41,000 \text{ cubic feet of inflow.}$$

$$\frac{41000}{50} = 820 \text{ inflow per minute in cubic feet.}$$

The inflow per minute being known, other questions which need only be suggested may be answered. An experiment has been made on the air of a room which contains only thirty pupils, but is seated for fifty; what would the result have been had all the seats been occupied? The session has lasted but 40 minutes at the time of the experiment; how would it have resulted if made at the end of two hours?—and so on.

In practice it is often found that the inflow as determined by the anemometer is much greater than that obtained from the chemical results. That the air enters is certain, and that it fails to be utilized in diluting the expired air appears equally so. A want of diffusion must be inferred in explanation. A notable example of this was recently found in one of the rooms in the Franklin school, where 800 cubic feet per minute certainly entered, while but 324 feet contributed to the ventilation. The cause in this instance was manifest. The temperature of the incoming air was so great that it rose immediately to the ceiling, whence

it was drawn off by the lowered windows and foul air flues. To determine the existence of currents which interfere with a general diffusion, the room may be filled with vapor of chloride of ammonium. Liquid ammonia is poured over pieces of thick blotting paper lying upon a shallow plate, and over them, by way of a flue, is placed a wide cylinder of the same absorbent paper moistened with hydrochloric acid. The fumes rise quickly, filling the room and indicating the course and character of its air movement.

At the conclusion of this paper Mr. WILSON offered the following resolution, which was unanimously adopted:

Resolved, That the Committee on Appropriations of the House of Representatives be requested to furnish this department, for publication with its proceedings, a copy of the report of Dr. J. S. Billings, vice president of the National Board of Health; Edward Clark, Architect of the Capitol; and Hon. John Eaton, Commissioner of Education, recently appointed by the House of Representatives to examine and make a report upon the condition of the public school buildings of the District of Columbia, and to make suggestions in relation thereto. (See appendix, page 107.)

The next paper was presented by Hon. H. S. JONES, PH. D., superintendent of schools at Erie, Pa., and secretary of the department of superintendence :

OBSTACLES IN THE WAY OF BETTER PRIMARY EDUCATION.

Whoever would attempt to show that, during the majestic march of our country through the last half century, the education of the people had kept step with the other enterprises forming important factors in the building up of a great nation, would find failure easy and success extremely difficult, while he who would venture to prove that education was hardly progressive, was indeed a laggard twenty-five to fifty years behind the wants of the time, would find an abundance of material with which to make out his case.

It is purposed to discuss, in unvarnished phrase, some of the common obstacles in the way of better primary education.

The term obstacles, as applied to educational hindrances, is used in its radical sense, representing difficulties that are serious and as firmly established as the malaria of the Pontine marshes or the large families of consonants in the Welsh language.

The expression primary education in this paper has reference to the ordinary district school and the town school below the high school.

Chief of the obstacles to which your attention is called is :

I.—A WEAK EDUCATIONAL APPETITE.

A strong appetite for education does not consist in mere capacity or desire for learning, but in an impelling, conquering force that enables one not only to acquire knowledge by the aid of what are called advantages, but drives him to seek it and find it under discouragement and frequent defeat, and, more, to assimilate it, make it individual.

It is found in every character of prominence: Franklin, Clay, Greeley, Lincoln, Edison, Garfield. It exists independent of the school, though the school may right nobly assist in its development, or, unhappily, destructively enfeeble its possibilities.

Let us try to form an estimate of the public educational appetite. Will the people endure as much, save as much, think as much for education as they did years ago? Is not the sentiment vigorous and growing, that education should come rapidly, easily, and cost little? Is the demand for educational bequests and endowments growing less? Do not the leading, wealthy institutions of our country stand hat in hand like mendicants?

Suppose those young people in our higher institutions of learning who have no financial worry about the morrow were called upon to pay the actual cost of their instruction, what would be the result? The verdict would be that superior education is too expensive even for the wealthy, a luxury to be shunned. What sentiment does the limited and irregular attendance of our free schools reflect? The thousands that attend them are very, very young, and like unripe fruit they drop off the school tree before their time. While parents value a little assistance or a few pennies earned by their offspring more than they do the benefits of school, the children, looking through parental eyes, soon lose taste for study and willingly drop out and join the vast army of the undisciplined, which ranks scarcely above the illiterate.

The tramp element is a social fungus marked "hard times" by labor reformers, but "no appetite for thought" would more surely hit the nail on the head.

As intimated, the school may have a part in causing the natural, intellectual appetite to become dyspeptic. The schools have suffered considerably from mental dyspepsia, caused by the unpalatable, uncooked, uncarved food of the old-time methods and the thin soup and pedagogical hash of the latter day saints. I would be the last to decry what are termed improved methods, but when they seek to be superlative in complexity or follow unhesitatingly even a great mind through all its windings, vagaries, and hasty conclusions, I would cry "Hold! Let us take counsel together, lest we lose that which we have and gain nothing."

The no-methods of the older days seem to be ingrained with stupid neglect, while those of the present, that attract and fascinate, are emphatic in coddling kindness and tend to keep the child childish.

If a boy has an honest, upbuilding appetite, it matters little, as to his growth, whether he eats with fork, knife, spoon, or fingers.

II.—ANY RESPECTABLE ANYBODY CAN TEACH, AND HIRING THE CHEAPEST ANYBODY IS ECONOMY.

This sentiment is as common and as tenacious of life as grass. It has been known to go into a decline and seem ready for burial, when, as

if by magic, its youth and strength are renewed and it takes an active part in forwarding civilization! Sometimes it is exceedingly timid, but a little persuasion of the right sort will coax it to the front, where it will lead and control public opinion. Following the last panic, it manifested the energy and vertebra of a General Jackson, sweeping broad sections of our fair land with the besom of "educational reform."

Not many years ago, in a city of considerable size and promise, the president of the school board, who was called "Judge" and had served his constituents in their municipal chambers and in the State legislature, said, in an address to the body over which he presided, that the salaries had risen far above the sentiment of the community, that the law of supply and demand should govern in hiring teachers, and he was convinced from the large number of applicants and the personal solicitations of their friends that the schools could be filled by persons who would be satisfied with ten dollars a month!

Like an untimely frost, this crisp political economy maxim, coming from so respectable and honorable a source, nipped in the bud a feeble effort to make poor schools better. "Supply and demand" has forced into many a school the husks and chaff of the crowd that stand eager for any place at any salary.

A prominent business man forcibly remarked that the school boards of the country were extravagant in salaries; 25 to 50 per cent. could be saved by giving out the schools to the lowest bidders. That would be business, and if the schools lacked in anything, it was in business methods.

The friends of improved education have founded normal schools—only a fraction of the number needed—and can we look for a proper increase of these institutions so long as the normal school has only a precarious hold on the public?

Their students and graduates have found that they must compete with the army of anybodies, and that only here and there have they been shown favor on account of their professional training. A prominent normal school principal recently stated that his experience was that the better teachers were prepared the shorter would be their term of service, other callings offering a greater premium to the energetic and disciplined.

Cities have crowned their systems with normal departments and left the teacher-graduate to take her chance with the non-professional applicant.

Is it surprising that the normal school has no professional breadth? that it is a mere academy surrounded by a sort of pedagogic halo?

Mr. Bland says, "Give us the best teachers—professional teachers." But when importuned to use his influence in favor of Miss Goody Unfortunate of tender years, or Widow Oldtime, or Embryo Blackstone, the horizon of his judgment widens and he obeys the call to be "influ-

ential." The Bland family is large, active, and sympathetic, hence popular, for it serves the good people with alacrity!

Experience is but faintly recognized, and it is easy to find towns, like a wealthy city in the Empire State, that virtually say, "We pay just as much for blundering experiments as for solid, finished work!" This plan is a blessing to the experimenters, for through it the "good die early" and their places have to be filled!

Cities, villages, and rural districts take pride in showing the taxpayers how much less it costs them per scholar for teachers' wages than it does many other less economical communities. School authorities are never called to account by their constituents when the expense per capita for instruction shows that economy has been made equivalent to hiring the cheapest anybody.

The terms used by Adams in speaking of superintendents, in his "New Departure" pamphlet, reflect this sentiment: "The ordinary superintendent is a grammar school teacher gone to seed," "some retired clergyman or local politician out of a job!" "That this should be so is certainly most singular!"

Not a few laws pertaining to the county superintendency have been so framed as to make the highway to that office as broad and as easily travelled as that which leads to the heights held by the town constable!

This obstacle finds support in the orthodox method of examining teachers. Applicants are usually examined as if they were still mere school children, so that a bright boy or a bright girl of self possession and ready memory may go up to the examination and win a high grade certificate, while a person of mature judgment and skill as a teacher may fail to reach a fair standard. In looking over "model questions" published in books and educational journals, it will be found that but a few refer to the business of teaching. A set recently published contains but three that would cause one to suspect that they were for teachers:

- (1) "What is the best method of ventilation?"
- (2) "What is the principal object of education?"
- (3) "How do you regulate whispering?"

III.—IGNORANT OFFICIAL INTERFERENCE.

This may be beaming with enthusiastic good-nature and worthy intention supported by an amount of school information large enough to give edge to self confidence, or it may glow with that fierce destructive hatred which would destroy an institution rather than allow it to exist with apparent defects.

The childlike confidence with which some school officials handle educational affairs is equal to that shown by the pet of the family when he puts his tiny finger into the candle and succeeds in learning a lesson and in creating a disturbance.

Mr. Spellbound (ex-champion speller) tells the new and hopeful teacher

that the school can't spell. "Spellin' is what they want! no new-fangled ways; have 'em stand up and spell. When I went to school I learned to spell; you may have heard of it." The campaign opens with a daily battle of words; "spellin'" becomes a hobby and the best speller wears the crown.

Spellbound is followed by 'Squire Root, who observes to the happy teacher that she is running spelling "into the ground." "Rithmetic is what they want; Shakespeare couldn't spell his own name. Suppose you ask 'em this simple question, and see 'em get stuck: What's the square root of sixty-four?"

John Hancock would bring penmanship to the front, so that a page of a pupil's manuscript would be rich in shading and flourishing, but poor in legibility.

Director Crabb in his "remarks" to the school lays down the test of discipline. "The scholars don't sit still. When I taught school you could hear a pin drop. You must have order; a school without order is a failure."

Patrick Henry urges upon the teacher the importance of speaking and exhibitions. "The future governor of the State may be under your instruction, or possibly the coming President of this great nation; see that they are trained to address their fellow citizens."

The teacher labors on under an increasing pressure of direction and advice, following each voice in turn, until in a state of bewilderment she loses her individuality and wanders without purpose through the term and rejoices when "the last day comes" and all is over.

A few years ago a director seeking a teacher called at my office; he was referred to a normal school. The advice was not at all acceptable. "We don't want any normal school nonsense. We tried one of 'em. Everything was new-fangled. Scholars didn't stand up and spell, and they were told to help themselves, and he actually refused to show some of 'em when they got *stuck*. Didn't have such foolin' when I went to school. He wouldn't listen to my suggestions, so we put him out."

Sometimes official interference is highly respectable, as is well illustrated in the story of the "New Departure at Quincy," in the words of Mr. Adams: "During the examinations the schools were taken wholly out of the hands of the teachers. The result was deplorable; the schools went to pieces. The committee were busy men, not specialists in education. Committees elected by popular vote are entirely unequal to any sustained effort."

The "Queen City" of the world in liberality in school affairs, is almost distracted over the primary school question. The hydra-committee, well informed, proud spirited, but irresponsible, have in a great measure ignored the experience and wisdom of their best teachers, and made them and their pupils instruments for forced experiments.

Surely this historic town spends money enough on her schools to place the methods of work in education in the hands of educators.

IV.—THE FREQUENT CHANGE IN EDUCATIONAL WORKERS.

The average rural school experiences a change of administration each term, and in towns and cities the mobility of teachers is not a little surprising. A superintendent of a pleasant city employing about seventy teachers finds that the teacher's life averages less than three years, and he urges the school board to organize a training department, in order that less of this brief service may be given up to experiment.

Another city, remarkable for its respect for "tenure of office" in teacher and superintendent, has but thirty of the present force of over a hundred who were in the schools six years ago.

A county superintendent was doing a noble work—elevating the standard of the schools—when a voice like one "crying in the wilderness" was heard: "He's getting too exacting in examinations!" "It's time for a change!" "No third term!" Election day came and went, and he was called to the common fate of his kind, to step down and enjoy the quiet of defeat.

I have in mind an experienced schoolman, a sort of educational Luther in his county, but I fear that at the next election the guillotine of popular opinion in favor of rotation in office will be applied to this "right man in the right place."

The experience of school boards is usually limited and narrow. Capable men, willing to go on and serve the public, must step aside for the inexperienced and possibly the utterly incompetent.

The picture grows no brighter when taken from the heights of State supervision. The tenure of office is too short to possess even the quality of sweetness. The chief officer can hardly do more than take a hasty survey of matters, make out a report or two, draw his meagre salary, and retire.

V.—FORSAKING THE COUNTRY SCHOOL FOR THE TOWN SCHOOL.

The statement openly and emphatically made, that the old time district school was better than its successor of to-day, is not so wild as it sounds. In many cases, the school of years ago, with its large number, its spelling matches, its debating society, the intellectual centre of a neighborhood, has dwindled to a state of feebleness unpleasant to contemplate. The well-to-do boys and girls seek the town school, leaving the home school to the very young and the poorer children, to be presided over by a youthful member of the large Micawber family.

Few young men of force and ambition now make the district school a stepping-stone to a broader and more exacting life. They find better support in their struggle to rise in other directions. It is doubtful whether it will be said of the Garfields of the next generation that on their way upward they honored and blessed the common school as instructors.

The superintendent of a great and ambitious State laments the weakness of the district school, and recommends consolidation; and in com-

plimentary terms infers that, as the people have accepted professional cheese and butter makers, they will soon be wise enough to call into their rural schools none but professional educators. It is evident, in this case, that cheese has the start of the children.

VI.—SELF SATISFACTION.

This assumes several forms, running from self glorification to stolid indifference. The majority voice too often says "Our schools are as good as any" or "They are the best."

Rarely do school boards visit other schools than their own or send their teachers to study the workings of other systems. The material affairs of municipalities suffer less. Fire departments, systems of sewage, water supply, and paving are placed in comparison founded on actual observations made by committees aided by experts.

VII.—BRICK AND MORTAR.

This is not widespread, but it is contagious. General Garfield, in his last address to this body, said that soon the "great case" in education would be Brains *vs.* Brick and Mortar.

The tendency to estimate a school by a brick and mortar standard is certainly increasing.

It is applied alike to the "university" and the school of the pretentious village. In many instances, the people are so loaded with debt caused by showy and expensive school architecture that when their children cry for mental food they get in response cut stone instead of educational bread. A child in a palace in charge of a brainless teacher is poor indeed!

With a simple introduction, I present the following as "big children" of the obstacles discussed:

(1) That mechanical drill is education, information swallowing, learning; (2) that a mental quart cup can hold a gallon; (3) sensitiveness of teachers to criticism (thin-skinned? why, some wear their nerves as an outer garment!); (4) lack of educational ideas among the people; (5) social lines, "blood and bullion;" (6) that the masses know what they want (vox populi, &c.); (7) that the school is to cure all weakness, remedy defects, and insure a money-making life.

These obstacles are of the people. Educators are not the people. Only a small fraction have enlisted for the war; the rank and file are "home guards." It has been often said that educators are fighting the great army of the king of ignorance; but it is seldom noticed that the supplies are mostly in the hands of the enemy! What would the world say had England attacked the Zulus with this battle-cry, "Feed us and we will conquer you"?

The educator who has turned his back upon the money-making world, whose pluck, patience, faith, and force increase with his years, is the missionary of missionaries. The missionary when called is assured of

a decent support while active and the tender care of the sheltering arms of the church when retired, and in addition the prayers of the faithful and the promise of "exceeding great reward" in the world to come. But the educator is offered a precarious living when "up and doing," and nothing when time or cruel fortune shall cry "Halt!" no half-pay, no pension, nothing but a fund of fond memories, his own feeble prayers, and only that hope of a heavenly reward held out to ordinary mortals!

The paper on "City systems," read by Dr. JOHN D. PHILBRICK, has not been furnished for publication.

Mr. WILSON, from the executive committee, announced the committee to bring the subject of national aid to education before Congress as follows: J. W. Dickinson, secretary State board of education, Massachusetts, chairman; H. Clay Armstrong, State superintendent of education, Alabama; Aaron Gove, superintendent of schools, Denver, Colo.; B. G. Northrop, secretary of the State board of education, Connecticut; Gustavus J. Orr, State school commissioner, Georgia; George Howland, superintendent of schools, Chicago, Ill.; James H. Smart, Indiana; J. W. Akers, State superintendent of public instruction, Iowa; G. T. Fletcher, superintendent of schools, Augusta, Me.; M. A. Newell, State superintendent of public instruction, Maryland; V. B. Cochran, State superintendent of public instruction, Michigan; William H. Gardiner, New Hampshire; J. A. Dix, superintendent of schools, Elizabeth, N. J.; Dexter A. Hawkins, New York; John C. Scarborough, State superintendent of public instruction, North Carolina; Daniel F. De Wolf, State commissioner of common schools, Ohio; H. S. Jones, superintendent of schools, Erie, Pa.; Thomas B. Stockwell, State commissioner of common schools, Rhode Island; Hugh S. Thompson, State superintendent of education, South Carolina; C. C. Painter, Fisk University, Nashville, Tenn.; Lyndon A. Smith, Vermont; J. L. M. Curry, general agent of the Peabody Fund, Richmond, Va.; B. L. Butcher, State superintendent of free schools, West Virginia; B. G. Lovejoy, member school board, Washington, District of Columbia; Allen Wright, superintendent of schools, Choctaw Nation, Indian Territory; J. W. Hoyt, governor of Wyoming Territory.

The morning session was concluded by the presentation of the following paper by G. STANLEY HALL, PH. D., lecturer on pedagogy at Harvard University:

CHAIRS OF PEDAGOGY IN OUR HIGHER INSTITUTIONS OF LEARNING.

LADIES AND GENTLEMEN: You have all heard of the notable chapter in a modern work entitled *Snakes in Ireland*, which reads simply "There are no snakes in Ireland." If the author of that chapter had frankly added that he had never been in Ireland and was not even a naturalist, his case would have been still more like my own; for I regret that I must begin the discussion of the subject which has been assigned

me in a hardly less inauspicious way, as, first, there are no chairs of pedagogy in our higher institutions of learning, or but two, I think; and, secondly, the present speaker's studies have been so centred on the practical psychology of teaching and learning that he can only plead the pressing importance of the subject for presenting a few considerations, some of which have not had time to become quite matured.

Perhaps the first thing urged by those who advocate such chairs is the German precedent. During the semester which has just ended between 40 and 50 courses of lectures on pedagogy have been given in the various German universities. A few of these are but two hours a week; a few are confined to the pedagogy of special sciences and designed for future professors in these departments. Sometimes a disciple of Hegel, like the late Professor Rosenkranz, of Königsberg, or of Herbart, like Strümpel, in Leipzig, or a positivist, like Laas, of Strasburg, loves to vary the attractions of his philosophy by lecturing from once to four times a week on some pedagogic theme. A high church, low church, or a Catholic theological professor chooses this subject sometimes to indoctrinate future teachers and through them the rising generation in what he considers sound theories of education. Thus it comes to pass that many of the voluminous treatises on pedagogy which emanate from professorial chairs in Germany, while having much in common, differ often in detail and often still more radically in first principles respecting the ultimate ends, objects, and spirit of education. Thus it comes that most of the religious, philosophic, and scientific tendencies have not only found their expression, but have their disciples among teachers of the public schools. This not only tends to prevent stagnation, a great and constant danger in education, but (neglecting the polemics, rarely tedious or bitter) each standpoint has contributed something new and valuable; and vast as is the body of pedagogic literature in that country, the human mind is still vaster. Very few professors who have lectured on pedagogy there have made it their central interest from first to last, and it is often an incidental if not a second class course. Of the three or so who have made pedagogy their exclusive specialty, perhaps the most active is a disciple of Herbart, who edits a year book, visits schools with his pupils, studies children and methods, especially of primary grades, has published two valuable books, lectures constantly in the university, and has treated with great detail and authority several of the elementary branches. Most of the pedagogical literature of that country is written by teachers of various grades, and is of every degree of merit and interest. Perhaps a score of the more comprehensive treatises are very valuable, full of suggestion and stimulus, while over much of these writings, it must be confessed, the very spirit invoked in the Dunciad has woven a resistless spell; to read it is like sifting a bushel of chaffy, philosophic words for two grains of wheat.

In several of the universities of Great Britain, individuals able and

interested in the subject have been invited to give single courses of lectures on some special aspect of pedagogy for which they were best qualified, and one or two permanent professorships have been established. In France and Italy university lectures have also been given, but I know of no department yet established on a permanent basis.

In matters of education, however, we must not be guided too much by foreign precedent, although we have very much to learn from Germany. We have our own peculiar problems, which we must solve in our own peculiar and independent way. There is a pregnant sense in which the American school from bottom to top, from Kindergarten to university, is and must be unique. Here every one who does not send his child to school (which he should do for the same reason as he pays his taxes or fights in time of war) must be regarded in a peculiarly insidious sense an enemy of the state. A republic like ours should be especially an educational state. The life of a republic, it has been well said, is a struggle for existence against ignorance and the evils which troop in its train, and the question whether such a form of government as ours can be permanent is at bottom a question of education, because a self government demands a so much higher degree of knowledge and virtue among its people than any other form of government. Because our great outstanding problems can be solved only gradually, and by no other means than general education, school laws should be a most important branch of legislation by the state. And the matter of popular education should be one important care and interest close to the heart of all higher institutions of learning aided by the state, if not also of all those whose property is exempted from taxation by it. The former should have a peculiarly public function and interest in education. If there be any help in chairs of pedagogy, or even any reasonable prospect of help in them, the need of it is great and increasing enough to warrant the experiment. Moreover, a university is historically and preëminently a teacher of teachers in the broadest sense, as indeed the very degree "doctor" implies, and not in any sense a finishing or industrial school of any sort. This function is one which I am sure the American college cannot afford to lose sight of behind the narrower question, so liable to eclipse it in these days of hot college competition and rivalry, "Will it be of immediate and material help to us?" School boards, it is said, have great and too often almost sole initiative power, but a very rapidly increasing number of the members of these board are graduates. And if (which, so far as I could judge from nearly five years' university experience there, is quite the custom in Germany) most students, not scientific, were to hear one course of pedagogy, they would be much better fitted for the duties of that position.

Again, original investigation has a rapidly increasing value in college economics, and, as I believe, the prospects for new advances in this direction are now more pressing than ever before. Many colleges, again, are now surrounding the central work of their courses with a more or less

broad and defined penumbra of electives both hard and soft, of lectures and incidental courses of various kinds, somewhere among which a mild experiment of pedagogy might be attempted by the most cautious trustees without committing the institution irrevocably to it. If we had the admirable docent system of Germany, by which any young man who could pass the required examinations, which are special, hard, and long, could try his luck at lecturing in any university where he could attract students, provided only that he could live without salary, being paid by student fees alone, there is reason to think that this question like many others would settle itself by a slow and sure process of natural selection.

Perhaps the strongest objection to the establishment of such chairs, if not that most often heard or made by teachers, is that teaching cannot be taught, that it is not a science, that there is no philosophy of teaching. Sometimes it is said that, at least in the higher branches, knowledge of the subject is all that is needed; or again that every teacher must have his own method, peculiar to himself, if not learned by his own experience; or, again, that pedagogy is like agriculture, dentistry, or business, each of which may be taught in colleges by itself, but the matter of which is only a new combination of what is already taught in chemistry, botany, physiology, political economy, &c., but that there is no domain or body of fact and truth peculiarly and exclusively appertaining to it alone, as there must be to a true science. Its material, it is said, is partly drawn from general knowledge of human nature, and partly, like acoustics for the musician, from an extraneous science, and of questionable practical applicability, or perhaps the adverse inference is based on the well-known disagreement of the best writers on education. This line of argument, though far less emphasized now than formerly, still requires our serious attention. There is a strong pressure upon the universities to found new chairs, just as there is upon the schools to introduce new studies, and it must be borne in mind that lectures and text books cannot be equally valuable upon all subjects, but that deep channels of experience and fruitful mines of wisdom have opened only in a very few directions. Is there then breadth, depth, and richness enough of scientific soil for our most useful plant to strike its own deep root, and not flourish with a parasitic life?

It will be perhaps a convenient way of answering this important question if we hastily sketch the qualifications of and inventory the matter to be treated by an ideal teacher of pedagogy—an *ideal*, observe, which is perhaps nowhere fully realized, perhaps is not yet realizable, but respecting the nature of which there is now, I think, no great diversity of opinion.

First, then, he should be a more or less experienced teacher. He must be schooled even in the petty difficulties constantly encountered in the school-room and have developed tact to overcome them. He must have felt how prone we are in teaching, where it is hard to evolve

wisdom and right temper at call, to be handicapped by carking cares which make us welcome and trust too much in petty expedients. He must be profoundly and constantly sensible of the wide and ruinous chasm so liable to yawn between theory and practice, and never allow himself, as not a few pedagogues have done, to get out of sympathy with practical teachers nor allow them to get out of sympathy with him; for until teachers all have a systematic course of pedagogy behind them before entering their profession, all the best of them will be his hearers if he lectures accessibly to them, his readers if he writes, or perhaps his pupils for a term in his regular academic work. He must no doubt sometimes criticise and trouble them, and they him; must, perhaps, sometimes be more feared than favored; must resist the clamor for *only* what is immediately practical next day in school; must know just how far to go toward minute details and how much to leave to individuality, tact, and circumstances. When teachers become mechanical or cliquish, and countenance each other's errors, neglects, or deficiencies by a too intense esprit de corps, his position and his disposition should be so independent that he may see and point out plainly the evils sure to result, but all in a spirit so fraternal as to avoid all species of friction so far as in him lies, which as a rule is just so much force lost from the proper work of instruction.

Secondly, he should have seen and studied with great care and detail many schools of different grades and of many kinds, if possible in many lands, critically comparing methods and results, and have seen that in teaching there is not generally one single and only way of salvation, but that there are often several equally good methods of compassing the same thing. To get in a rut—a tendency in teaching as constant and strong as the law of gravity or organic decay—is bad, but to believe it the great and only highway of the world is worse yet, while it is often a great advantage to modulate from one method over into another no better. But, furthermore, a knowledge of the best results of others' experience is sure to be choicely culled in this comparative way, which will make it less needful for the young teacher to waste the precious energies and time of the children in getting his trade in the dearest of all the dear schools of experience. This observation should extend, it is needless to say, to all the items of light, ventilation, seats, plan of school-house, educational laws, appropriations, supervision, as well as books and teaching apparatus of all sorts, culminating, however, in the detailed methods of teaching the particular branches and exploring all the lines of least resistance into the pupils' minds.

Thirdly, and more specifically, there is the history of education, a vast mine of information and ready made and thoroughly distilled experience, the most immediate use of which is, perhaps, after all, negative, viz, to prevent us from trying again educational experiments already made over and over again. The history of education, especially in Germany, is an old and well-worked laboratory of such experiments, almost

no record of which exists as yet in our language. Almost every conceivable device in teaching, almost every relation to state and church, all species of legislative enactments, every trick and device of illustration, have been tried and recorded in the large letters of actual experience. Furthermore, we know how the historic sense, once well developed in a department, finds precious knowledge hived away in the strangest places and how everything reveals educational aspects. Historic interest here is a new sense, revealing a new order of things almost unsuspected before. Indeed it is scarcely too much to say that the pedagogic standpoint is perhaps in the broadest sense the very best, highest, and most prospective for reading history in general.

Now the three matters already specified are surely in the main peculiar to the field of pedagogy, of great interest and importance to teachers, and might perhaps occupy half the course or less, treated either separately or all together. No one of these, however, is exactly central, but the prime and indispensable requisite and core of a science of education is a knowledge of the human mind deeper and more scientific than that furnished by ordinary intercourse with men, individual experience, or self knowledge, and not capricious and accidental like that. This has been so often reiterated by almost every authority in education since Pestalozzi's *Book for Mothers*, or indeed since Comenius' *Orbis*, that it is only stating our question in different terms to ask if there is any real and true philosophy of mind solid and certain enough to be made the basis of the most important of modern institutions, except at least the church. Two or three decades ago, or even less, this would have seemed to the impartial and competent observer a preposterous claim and does even yet in many quarters. Compare, as I have tried to do, the methods, ends, and order of education as indicated by the pietist Palmer, the Hegelian Rosenkranz, the Herbartian Ziller, the Schellingian Fröbel, or compare the common Hamiltonian, or Scotch, notion of the mind and its activities with that of Spencer, Whately, Stricker, Wundt, and the rest, or the latter among themselves, and it is disheartening to observe the often fundamental disagreement. So far and so long as philosophy was divided into sects or schools, teachers were quite right in their dread of being entangled in systems which were sure to make them, as Schopenhauer declares all are who think in systems, blind to all that opposes and lynx-eyed to all that favors them. But with the gradual decay of the system of absolute idealism in Germany, from which all English and American philosophy except the theories of association and evolution sprung, a new state of things slowly supervened. A broader sanity caused thinkers to cease to be ashamed or afraid or unable to be intelligible; and, to make a long story short, a feeling of solidarity and consensus has arisen among students of mind, each considering the other as an ally, cordially recognizing what he has done, and each content to contribute his item to a vast whole and not yearning with the ambition of construing the universe from his own in-

dividual vantage ground, the fruitful source of error and conflict. It is this movement which, in the language of Waitz, has saved philosophy. It is this which, as Lotze says, is so fast destroying the prejudices and false presuppositions which have so long preoccupied the field of both mental and educational science; and it is this which has made the present a day of philosophical renaissance in which more general interest and hopefulness centre about this field than ever before in this country. The Baconian method has just begun last of all to transform the methods of mental study, and the old systems of the heroic age of German speculation already seem like the pale landscape backgrounds of some of Raphael's canvases; not valueless nor all unlike landscapes in nature, but as conventionalized in their methods of representing the human mind as is the twining ivy as represented in the scroll-work upon an illuminated missal. Now this direction of philosophic study, none the less philosophical because sometimes resented by scientific men, culminates in education. The senses, memory, attention, the will, the psychic development of children, &c., much of which is of immediate practical utility, are made the subjects of a more careful and fruitful study than ever before. These mines are, to be sure, newly opened. Much of the material is widely scattered and must be laboriously gathered from sources as diverse as metaphysical journals, physiological, neurological, pathological archives, and there is much dross, but the new red gold is there and can be had for the sifting. Here lies the heart of pedagogy, as in the centre of a great but only peripherally explored continent. In this exploration the ideal professor of pedagogy should and easily could do original work by studying the faculties of children, active, passive, and at rest, and the various phases of their growth by inductive methods already suggested and fruitful, a more detailed exposition of which the writer hopes shortly to present. A cross section, as it were, of the adult mind is not what is wanted, yet such are most of the current treatises on mental philosophy. It is the fundamental law of mental development, as well of action and assimilation, that must be made the basis of methods of teaching, topics chosen, and their order. Almost no truth may not be as disastrous as a lie, if taught too early or late or wrongly, and almost no error may not be made salutary if all these are in its favor.

In this most central position, then, a firm corner-stone is now laid for scientific pedagogy. It is true that psychology begins in tact and sympathy, but it ends in anthropology, one of the richest and broadest fields of research known. It is true that genius is born, not made, in pedagogy as elsewhere; but it is also true that anxious study of the material upon which they work is needed, as well as a whole repertory of instruments and methods, for those who would work upon mind or upon the brain, the most complex of all the tissues woven in the loom of time. It is often true that a little pedagogy is a dangerous thing, but so is a little knowledge of every art or profession, while deep down below our

successes or failures as teachers lie certain causative psychological principles, to know which would be to control them. As the great educational problems, most of which have been only provisionally settled, open broader and deeper one after another, as they do in times of educational awakening, what shall be included in our curricula and what time shall be given to each; what is the educational and practical value of each; how shall school work be unified, so that mere contiguity shall not be mistaken for real logical affinity, so that we may secure, at least to a degree, harmonious development in these days of accident and casually competing specialties—these and many such wider problems can ripen to full maturity only in an atmosphere charged with philosophic insight and the accumulated experience of the centuries. The effects of these studies upon the teacher are not often remarked by the casual observer, but they increase his inner life; he loves to grow mentally as well as to foster growth; slowly and silently they increase his potency and his earnestness, lift him above petty expedients and reliance on short cuts and patent methods, and perhaps best of all, secure a professional spirit.

Fifthly, and in a sense more fundamental, are the bearings of ethics on education. There has been much freshened activity in this field, of which I have left myself no time to speak here. The notions of duty and freedom have been deepened and cleared up in a way at least prophetic of new advances. This is likely to have a very practical bearing in the new movement (one of the most interesting at present in the whole field of education) to introduce moral training of some sort into the schools as a public need. As all the practical questions of intellectual education centre in psychology, so most of the wider and deeper problems of character, the relation between morality and mental culture, the relation of the school to state, church, home, and all the ethical goods or values which make life fit to be lived—these centre in ethics, which is fast becoming a necessity for the practical teacher.

Each of these five tendencies, especially the last three, is at present far more cultivated and further developed in Germany than in this country. This needs to be boldly and distinctly said, despite the suspicion of want of patriotism, Teutonic affectation, &c., so liable to arise. There is in that country a great body of comparatively recent educational literature of a very high order, only a very small part of which is to be found in the alcoves of any library in this country. Indeed, I am almost ready to say that for one I see no greater and more imperative need in our educational field at present, except southern aid, than one or more exhaustive educational libraries, and perhaps museums, and a few men who have the will and the ability and are secured the leisure to work it up and over, slowly and carefully, critically adapting it to the needs and bringing it to the knowledge of our best teachers and those who intend to teach, as a few professors of pedagogy could do if their chairs stood upon a proper basis. Their function should be in part a public one. Great

as is now the mechanical, material, organic perfection of our schools, greater probably, averaging large sections, than in any other part of the world, we still need a better study of methods than our normal schools are yet prepared to give or their pupils to receive, while graduates from colleges who wish to fit for superior teachers have no training suited to them. The great danger of superintendents, supervisors, &c., is that they will be absorbed by the business, managerial functions, and neglect giving their chief attention to the central and most essential studies which alone can make their work professional.

Chairs of pedagogy ought to help the institutions which establish them, especially in the department of mental philosophy, now often so poorly taught in colleges that it must be justly held in part responsible for our backwardness in applying mental laws to education. It is not improbable that the establishment of such chairs might be felt in other departments of college teaching, in stimulating increased interest in methods of instruction.

But we have dwelt too long upon snakes in Ireland, upon our ideal pedagogist, who does not yet exist. It is time to remember that there are practical difficulties to be overcome of a somewhat serious nature. First, where are the men to fill these chairs? Some of our college presidents and trustees, it is to be hoped and believed, have already taken up the lantern of Diogenes, and are sincerely searching for men, but are of course not unmindful of the fact that unwise, incompetent men might do harm, while only fairly good men might distil mediocrity and dignify commonplaces. But there is the same trouble in other departments, and especially in every new one, while young men are appointed every day more for their promises than their performances. The colleges could give opportunity and stimulus, while youth and enthusiasm could be safely trusted to soon do the rest. Appointment to a college chair is, ought to be, only the beginning of a life of research and growth, and so far as our colleges are serious in encouraging original work might they not, for the same academic reason, encourage fresh studies in such new and promising fields?

The objections that such chairs would interfere in any way with the work of normal schools and that there is no demand for higher training than they are giving and the lack of funds for new professorships so commonly pleaded were briefly considered and the speaker concluded as follows: If teaching is to become a profession it is superintendents and supervisors, &c., who must first make it so, by becoming, as their high position demands, strictly professional themselves in their work. It is they who have most interest in making education a science and teaching a profession. It is movement in this direction that is to establish the system of superintendency in those many communities where the question respecting its utility has now been opened. It is they whose urgency and perhaps petition and agitation might perhaps be instrumental in establishing such chairs in some needed places. The very existence of

a large body of superintendents like this, upon whose shoulders rests a vast and increasing though all too often unrecognized power—not so far less than that of yonder august legislative bodies, to the far historic ken, in shaping the America of a generation hence—this body, its needful dignity and power, its practical needs, constitute the strongest and most urgent argument in favor of professional pedagogy.

The Department then adjourned to meet in the same hall at 8 P. M.

SECOND SESSION—WEDNESDAY EVENING.

WASHINGTON, *March 22, 1882.*

The second session of the Department was held at 8 P. M. After calling the meeting to order, Mr. STOCKWELL, the president pro tempore, stated that the evening would be devoted solely to a discussion of the subject of national aid to education, and introduced Rev. A. D. MAYO, who spoke without notes as follows:

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION: It is a great comfort when speaking upon any such matter as we have in hand to feel that you are talking to people who need no preliminary, who understand all the fundamental arguments for education, and who are thoroughly competent to supply themselves with all the rhetoric and eloquence which it may be necessary to display on such an occasion.

I suppose you have asked me to speak to you to-night, not because I am a teacher, for I am not a teacher, but because during the past two years, engaged in what I may be permitted to call a ministry of education through the Southern States, I have had some rather unusual opportunities for observation in that part of the country. I shall return your compliment by speaking to you in the plainest manner, giving a plain, unvarnished tale, indicating to you some conclusions which have been forcing themselves upon my mind in connection with this most important subject.

The first impression which has been made upon me in this matter is that the great need of the Southern States to-day is a system of elementary education; and when I speak of a system of elementary education I do not refer to the old-fashioned district or city school, a clumsy machine for teaching the three R's, but I mean our modern idea of elementary education, the new elementary education, the school that takes the child from the age of five or six to twelve or fourteen and carries him through a proper elementary education which fits him to go forth at that time armed with the powers of citizenship; and this new elementary education, as we see it now all over our country, bears about the same relation to the old-fashioned elementary education that the limited express train on which our brother Hawkins came to-day from New York bears to the old family chariot in which George Washington jolted to New York to take his oath as President of the United States.

It is this new elementary education, with the training of teachers com-

petent to enforce it, which is the great and crying want of our Southern States to-day.

Now, as I look over the South, I see that there are three classes of people, and each of them in a special way is to be benefited by this kind of education. First comes the great mass of the children of the freedmen, and elementary education in their case means to them a great deal more than it can mean for an average white child in this country, because the negro is the latest comer into society. Every white man has a thousand years of race culture behind him; the negro has at best but two hundred and fifty, and therefore elementary education for the children of the freedmen means, first, the formation of the educational mind, the building of the foundations on which instruction can be reared in the average colored child. It means education in a thousand things which in a well regulated community the teacher is hardly supposed to meddle with: education in manners, morals, and everything that goes to make up the fundamentals of our ordinary American life; and this work I consider the most difficult, the most arduous to be done of any work of teaching that is now going on.

Then we come to another class, the children of the ignorant white people in the South; and yet we shall make a great mistake if we think these unlettered people are a stupid people. They are chiefly of English-Scotch or Scotch-Irish extraction. Out of that class have come many of the ablest men in southern life. They have been educated by an experience in life which is remarkable and which has done great things for them, and these children are perhaps as well prepared for taking the elementary education in its beautiful new methods as any children that ever walked on the face of the earth.

Then comes the class of children which must awaken the compassion of every one who knows of them, the great multitude of children of those who twenty years ago were among the most wealthy people in the South, now reduced to utter poverty, so that unless some aid were extended to them multitudes would grow up in absolute ignorance.

Now there are these three classes, the freedmen, the children of the ignorant whites, and the destitute children of the old cultured class; and they all need this foundation of elementary education; and the people who have charge of the academic education and the collegiate education are coming fast to see that this education is their only safety. There are as many of these institutions now as the South ought to have for the next fifty years, and for lack of this elementary education these academies are compelled to do mere primary school work, mere grammar school work, by taking children at fourteen or fifteen who are in about the condition that children should be at ten or twelve. Right along with this comes the training of a body of teachers competent to do this work, and the material is all at hand through the southern country. The girl that was born the year that the war closed is to-day a young lady of seventeen. Since the close of the war a whole generation

of these boys and girls has come up in the South; and especially is it true that the South is full of the daughters of powerful families who are longing for the education which shall enable them to go forth and become the teachers, not only of the white but of the colored people.

Now I need not say that there are peculiar obstacles to doing this good work. One great obstacle is the amount of ignorance; another obstacle is one we do not appreciate; it is that nine-tenths of the people of the South never saw what we call a good public elementary school, such as can be seen to-day in Charleston, and it is owing largely to this fact that there is so much holding back among the people when you speak of public graded schools.

Then come other obstacles. One is the indisposition to taxation.

Then we must remember that the war in the South left society cut up. It has left a great heritage of bitterness between this people, so that it is very difficult for the people to get together and work together, forgetting each his own crotchets and his own notions.

Then there are physical obstacles and the sparse population of the great country. Then there is the race obstacle; and then there is this, the crowning difficulty: the difficulty of getting hold of enough money to do anything in any part of our southern country.

The school public, the free public school public, that I meet in all the Southern States, composed of superintendents, of teachers — this school public is one of the most forcible, most enlightened, and most determined body of people that ever got on foot in the United States of America. It may not be the majority of the people, but it is composed of that material that makes a majority if you only give it a good chance. Now, this school public, in such a spirit of self sacrifice as I never witnessed anywhere else, is trying to plant this system all over the South, and I could spend the whole evening in telling you the most affecting stories of labor performed, of the noblest people giving their time and their life like water to do this thing. Now, this public is trying to do this thing, and the great difficulty just now is the lack of money to do it. The great majority of the people believe in this elementary education by the State. The school public is a very enlightened and determined one, and they take all they can get from the people and do the best they can. But these school authorities have just enough money to make a school that is satisfactory to nobody in the town. The roof is on fire with the blaze of ignorance, and this people have a ladder that reaches about up to the second story window, and they are expected to go and put out the fire; and there is the trouble: just money enough to inaugurate a public school system, break down the old system of academical instruction, and not enough to give anything that is a substitute such as the leading class, on whom the schools must depend for success, will support.

Now, this is the great thing: we need, we want national aid in order to enable the school authorities all through the South at once to put the

thing before the people, to show it to the people who never saw a first class public school, to show it in a way that will conquer opposition, that will persuade the people themselves to take up the work and never let it die. I have seen some of the most interesting cases in which the establishment of a school of this kind has completely satisfied a public that has been fighting against it for years. •

If you can only give those friends the money to put before the people a real public school as an object lesson, the battle is won, and if you can do that for five or ten years, as this national aid proposes to do, the work will be done, so that at the end of that time every Southern State can be left to have its own system of education as thoroughly as any State in the East or the West.

Now, friends, how do we want that aid? In the first place, we want it now. This matter is urgent. Don't you see that if you let a generation of these children grow up, it is going to be all the harder to deal with this question; and don't you see that every child that you catch now you not only send that child out a better citizen, man or woman, but you send that child out determined that his child shall be better educated than himself?

Another thing is that we want money *enough* at once. What you want is something decisive which will enable the school authorities to plant a good school and let the people see it one year.

There is no more miserable economy than to be stinting your appropriation for a good work.

It seems to me that if for ten years a generous appropriation could be given to our Southern States the work could be done. You only aggravate the evil if you fail to do this. So let us have the work done now, and let us have enough to do it in a generous and effective way.

Let us give this money to the southern children and youth through the regular channels.

Any such thing as putting into these States a supplementary supervisor of schools, with a salary of \$3,000 or \$5,000 a year, I believe would defeat about all the good effects of the distribution through these States, for this man would be a bigger man than the State official. I don't care if two brothers were appointed, they would inevitably get into quarrels in trying to do this work. Two good men are too many to do any one good thing. Then, again, the expense would be from one to two hundred thousand dollars a year, as much as the Peabody fund has to-day, to put into every State of this Union a new Government officer. Then, too, we must remember that anybody that desires money from Uncle Sam must work for it. The Congress of the United States only does what it is compelled to do by the voice of the people. Let us go home and wake up the people in every State to demand that our servants at the Capitol shall give out of the present abundance of the nation's treasure house money enough, and at once, under fit safeguard and

supervision, to stem this flowing tide of ignorance and help our brethren in the South in their present heroic effort to help themselves.

A presentation of the subject of national aid from a northern standpoint was then given in the following address by DEXTER A. HAWKINS, A. M., of Newark, N. J.:

NATIONAL AID TO STATE COMMON SCHOOL EDUCATION.

I am requested to present the views upon this point generally held in the Northern or old free school States.

It might be supposed that the States that have from the beginning established and supported chiefly by public taxation a system of free public schools sufficient for all the children within their borders would be opposed to national aid to common school education. But this is not the fact. They look upon the people of each and all the States as fellow-citizens and brethren. They consider them all individually as members of one family. They look upon the whole country as one body of which the respective States and the citizens of each State are members.

In the natural body, whenever any one member is weakened, diseased, or disabled, the whole body suffers. Every other member necessarily loses some of its force and vitality and vigor. If one leg is gone, the other leg has double duty to perform, and it cannot enable the body to accomplish as much as though both legs were sound. If one foot or even one toe is diseased, it has a similar effect, and the whole body is either wholly or partially unfit for service. The same is true in the political body. If one State is weakened and its vigor and powers emasculated through the illiteracy of a great body of its inhabitants, that affects not only the nation as a whole, but every other State in the Union, and the people of every other State.

The underproduction of an illiterate State, the inability of its people to meet their individual debts, and of the State to meet its State debt (resulting from this underproduction of its citizens), cause annually loss to the citizens of every other State and injury to the credit of every other State and to the good name of the community.

The old free public school States are careful students of history. They look to the past for guides in the future. They find that in all ages and in all civilized countries the governing class has been, is, and must of necessity be an educated class; else the government cannot be either good or permanent. The very inherent nature of man and of government makes this principle constant and universal.

In this country the governing class is the entire body of the people; hence the education of the entire body of the people is an essential means of securing good and permanent government.

Education to be universal must be secured and enforced by laws that reach every individual. It cannot be left to minor authorities or organizations.

In the Republic of Sparta, twenty-eight hundred years ago, these principles were understood by Lycurgus, and the child of every citizen was educated at public expense and required to be so educated. In Athens, under the laws of Solon, five hundred years before the Christian era, the children of all the citizens were educated and required to be educated.

These two little free states ruled and controlled the whole of Greece; and Greece for five hundred years ruled and controlled the shores of the whole Mediterranean. It was not her physical force that did this, but the power of her intelligence. At the siege of Syracuse the Greek mathematician brought down to his aid the fires of heaven, and by concentrating the rays of the sun upon the enemies' machines of war burned them. The old Grecian republics to-day, through their literature, are one of the great powers in civilization and free government, though they ceased to exist as independent nations nearly two thousand years ago. Their philosophers, their poets, their historians, and their orators still instruct and delight us.

In the eighth century the great Christian Emperor Charlemagne required the children of all persons participating in the government to be educated, in order that intelligence might rule his empire. The power of intelligence thus developed, held and controlled by him, enabled him to unite and consolidate the whole of Western Europe.

In 1530 Martin Luther, at Geneva, made education obligatory upon all, and to-day the twenty-two cantons of the Swiss Republic, by more than a two-thirds vote, enjoy the beneficent influence of that law of Luther. In 1560 the Duchy of Orleans, by act of assembly, made education compulsory, and parents were bound under heavy penalties to send their children to school. In 1571 the states of Navarre made education obligatory upon all. In 1649 Württemberg made attendance at school compulsory, and punished non-compliance with fine and imprisonment.

The chief claim that the great Austrian Empress Maria Theresa has to immortality in history is that, more than a hundred years ago, she established public schools for the education of the children of her empire and required them to attend.

In 1773 Saxony made education compulsory upon all to the extent of ten years' schooling. In 1804 the attendance was secured by heavy fines and penalties, and to-day, we are informed, there is not a child of the school age in the whole of Saxony that has not attended school.

In 1795, as soon as the first French Republic was organized, education was made secular, universal, and compulsory. On the return of that country to monarchy, this was abolished. The present French Republic has established universal education and made it compulsory; hence the great prosperity of France, after losing, ten years ago, a thousand million dollars in gold and two provinces, with nearly two millions of her people. If they stick to universal education, their re-

public will endure; if they give it up, the republic will go under, as a monarchy of some kind is the only fit government for an ignorant people, and the more ignorant, the more despotic it must be.

In 1807, when Napoleon the Great had stripped Prussia of her territory, her wealth, and her power, and reduced her to a mere impoverished province, William von Humboldt, the brother of Alexander von Humboldt and minister of public instruction, presented to the King a scheme for the establishment of universal compulsory education, and assured him that through the education of its people Prussia would recover from her misfortunes and obtain and maintain a leading and controlling position in Europe. The King adopted the scheme, and Prussia ten years ago vindicated the wisdom and foresight of Humboldt.

As a race, the Hebrews especially excel in the education of their children. An illiterate Hebrew it is difficult to find anywhere. Hence the wealth, prosperity, and influence of that small people; and hence their oppression and expulsion from the country by the ignorant semi-barbaric Slavic races of Southern Russia.

Between two and three thousand years ago Confucius and Mencius established schools throughout China, and education in the Flowery Kingdom became universal. For centuries, under rigorous civil service regulations, none but the educated have been permitted to hold office under government or participate in it, until to-day an illiterate Chinaman is scarcely ever to be met. As a consequence, they have maintained a regular, orderly government for several thousand years, they support more people to the square mile than any other nation, and maintain a population equal to more than one-third of that of the entire globe. They seldom engage in foreign wars or interfere in the affairs of other nations. On this point Washington might have learned the wisdom of his farewell address from them.

When the early settlers came from England to this continent, two hundred and sixty years ago, they intended to establish here a free government, "a government of the people, for the people, and by the people," to use the perfect words of the immortal Lincoln, and as an essential condition precedent to the continuance of such a government they immediately established the public school.

In New England and the rest of the Northern States the school kept pace with the children, the intention being that no child should be allowed to grow up without ample opportunity to obtain a good common English education. Common school education is the key to the sobriety, industry, tenacity of purpose, and prosperity of the inhabitants of the Northern States. In 1642 the Colony of Massachusetts Bay not only established free common schools, but made education compulsory upon all children. Five years after, 1647, severe penalties were provided in case parents did not send their children to school.

In 1650 the Colony of Connecticut followed the example of her elder

sister, and not only established the schools, but made education compulsory upon all, until now it is extremely difficult for a native-born child to grow up in those two States without an education. The school officer ferrets him out and compels him to attend school unless he is being educated at home. What is the consequence? The people of Massachusetts and Connecticut excel in intelligence, in accumulated wealth, and in annual production, notwithstanding their barren soil and cold climate, those of any other States. Their few illiterates are mostly foreigners. The first six hundred immigrants that landed in Massachusetts contained thirty graduates of Cambridge University, England; and the intelligence of those thirty gentlemen, from the day they landed on the bleak shores of Massachusetts Bay until the present time, has continued to shed blessings upon the inhabitants of the Old Bay State. The people in the North believe in education; they believe in it everywhere, and on all occasions, and for all people. They are not only ready to educate themselves, but they are ready to help educate every child in the country who cannot obtain an education without their aid.

We in the old common school States believe in free government and universal suffrage. We believe the ballot is essential to the protection of individual rights.

When the four millions of negro slaves were delivered from bondage, the North insisted on giving them the ballot, in order that they might peaceably protect themselves. It was either the ballot or the bullet; and so low is the standard of political morals in this country that whatever class is not endowed with the ballot will have to submit to imposition, brutality, or expatriation unless it protects itself with the bullet.

The free school States, having endowed the four millions of ex-slaves with the ballot for self protection, are now, for the safety of the Republic, under the necessity of securing in some way to these ignorant voters, and to the half million of illiterate white voters in the South, an education sufficient to enable them intelligently to participate in and maintain in the Southern States a republican government. With ignorant voters, there or anywhere else, a free democratic republic is simply an impossibility. The illiterate vote must and will in some way be neutralized.

Napoleon's theory was that democracy with ignorant voters, in order to escape the ruin to society resulting from the rule of ignorance, necessarily and inevitably ended in some sort of despotism, usually military despotism; and all history shows that he was correct.

The Northern States being fully and firmly committed to free government, are hence fully and firmly committed to universal education as the only means of sustaining and perpetuating the blessings of free government. A few years ago the illiteracy of nearly one-half of the voters in one part of the country almost precipitated upon us a second civil war. It was avoided only by the patriotism and forbearance of the leaders of the two great political parties of the country. The free

school States do not wish to have free government run such a risk again. Unless we educate the voter, a similar crisis may recur every four years. The South came out of the war thoroughly impoverished; yet it to-day taxes itself more heavily, according to its property, for public education than does the North. But the money thus generously raised is wholly inadequate. If left to their own private resources it will take them a century to reach the safe point for free government; hence the old free school States are thoroughly alive and in earnest in favor of national aid to public education and its distribution according to illiteracy until the several States shall be able to get along without it. We precipitated four millions of ignorant citizens upon the cotton States; we feel that we owe it to ourselves and to them to help them in educating this mass of ignorance and fitting these four millions of people for the rational enjoyment of the legal rights with which we have insisted upon endowing them.

Slavery impoverished the South; it helped to enrich the North; for we enjoyed the advantages, if there were any, flowing from it, without the curses. The South now experiences the curses of its former condition, to wit, an illiterate and improvident population, without any of the advantages. Hence, common honesty, common safety, as well as common humanity and patriotism, call upon the North to advocate temporary national aid to public education, and the distribution of the money according to the number of illiterates in each State.

Since the year 1865 the people of the free school States have, by individual contributions, sent over a million dollars a year to their brethren at the South to aid education. It took years to stimulate the desire for knowledge among the ignorant and inert masses, and to get them, as a body, in condition to receive educational aid on a large scale to advantage. They are now hungering and thirsting for schools, and ask us from the national abundance to aid them.

They have over five millions of children of the school age, and raise ten millions of dollars annually to educate them. The rest of the Union has ten millions of children of the school age, and raises sixty millions a year to educate them. We can pay sixty millions as easily as they can the ten, because our labor is now and always has been educated and productive. They have, according to the census of 1880, 4,804,171 children above the age of ten who are illiterate, while we have only 1,435,787. Hence, to save free government from sinking under this weight of ignorance, a weight which we aided in throwing upon them, they need a larger amount of money (and need it now) for education than they at present are able to pay. When once they are helped over this present difficulty they can take care of themselves. The annual loss now to these States through the illiteracy of their laborers is more than double the whole cost of their present public schools.

A few years ago the Commissioner of Education made an investigation into the character, condition, and productiveness of the laborers

in all the great centres of toil in the United States, including every kind of labor, from the rudest and simplest to the most skilled. A series of questions propounded to the employers brought out the information required on all points. This information, generalized and reduced to a scale (assuming the illiterate laborer as the unit), gives the following instructive results: Considered as a mere machine of production, the laborer with a common school education will, on the average, produce annually 25 per cent. more than the illiterate; if he has an academic education he will produce 50 per cent. more; and if a collegiate education, 100 per cent. more.

Now, according to the census of 1870, there were in the southern part of our country about one million one hundred and forty-seven thousand (1,446,667) illiterate male adults. Putting the annual product of an illiterate laborer at the minimum sum of \$100, which is far below the average, the annual product of a laborer with a common school education would be \$125. Then these one million one hundred and forty-seven thousand illiterate male adults in the South, had they received a common school training, would produce annually \$25 apiece (or \$28,675,000) more than they now do. This is more than double the whole amount spent there on public education, which in 1879 was \$12,181,602. The loss to the country through the inefficiency of illiterate labor is but a small part of the actual loss from illiteracy, for an examination of the statistics of the whole country, as given in the census of 1870, shows that the illiterates produce thirty times their proportionate share of paupers and ten times their proportionate share of criminals.

The annual expense in the city of New York alone entailed by the pauper and criminal classes, in supporting the one and protecting society against the other, is five millions a year.

I have not been able to ascertain the annual expense of supporting the paupers and protecting society against the criminals in the Southern States; but if it is one-half as great, according to the population, as in the city of New York, it would be over \$25,000,000 a year. Now, it is calculated by experts in social science that 96 per cent. of pauperism can be eradicated by education, and that at least one-half of the crime in the community can be prevented by education.

In the Grand Duchy of Baden, with a population of a million and a half, they reduced the number of paupers 25 per cent. and the number of crimes 51 per cent. by enforcing a thorough system of universal education for the space of seven years, 1854 to 1861.

If pauperism and crime in the Southern States were reduced to a minimum by a vigorous enforcement of the education of all the children to the extent of the course of study in our common schools, it would produce, then, an annual saving to the community in the pauper and criminal expenses of fifteen millions of dollars. This, with the gain of over twenty-eight millions a year in the increased production of the laborers through educating them to the extent of the curriculum of the free

common school, would give an annual increase of production and saving of expense equal to forty-three million dollars.

This is the financial gain in that part of our country alone to be made through universal education in the elementary branches. If this were done, the South would be amply able to support as complete a system of free common schools as there is now in the State of Massachusetts; and with an enforced attendance, by a compulsory law, of every child that is of the school age, so as to eliminate from society in the future the illiterate adult, it would no longer be afflicted with the evils and threatened with the dangers arising from ignorant suffrage. It would be able, without difficulty, through the increased productiveness of its labor, to pay, in a very few years, not only the interest, but the principal, of all its State debts; and individual solvency would be so universal that every merchant who traded with their people would be able to collect promptly the pay for his goods.

The South now, through the illiteracy of its people, and the consequent deficiency in production and in accumulated wealth, pays but a small portion of the national taxes.

If by giving them out of the national treasury, for ten years, a few millions of dollars a year to aid in public education we can eradicate illiteracy, and as a consequence reduce the pauper and criminal expenses as well as make their labor efficient, they will in a few years be able to return the money to the national treasury in the increased amount of national taxes they will pay by reason of the increased annual production and consumption and accumulated wealth of their people; so that, looked upon as a financial investment merely, the people of the old free school States think that national aid to public common school education, for a limited period, is the wisest and best use that Congress can make of a portion of the public money.

Many millions are appropriated for internal improvements; the power to do this in the Constitution is no clearer and the necessity much less than the power and necessity to appropriate money from the national treasury in aid of common school education. The internal improvement resulting from ridding ourselves of four million eight hundred thousand illiterate youth by educating them is infinitely greater than ever did or ever can result from the building of Government roads, canals, or railroads, or from improving rivers and harbors.

If the bill in aid of public education now before Congress (appropriating fifteen million dollars for the first year and decreasing the amount by a million every year until at the end of ten years the whole appropriation ceases, and distributing the money to the States according to the number of illiterates in each by the census of 1880) becomes a law, the old free school States will receive a reasonable share of the money, for the immigrants that have been pouring into the country for the last twenty years—last year to the extent of three-quarters of a million—have nearly all settled in those States; and among those immigrants is a

large body of illiterates. The whole number in these States (chiefly foreign born above the age of ten years) according to the census of 1880 is nearly a million and a half, and the number of illiterate adults is half a million. The proportion of this money that we shall receive will be sufficient to go far toward eradicating this illiteracy, and hence every dollar given to the North will return in the end many times to the public treasury through the improved condition and capacity to pay taxes in the future of the million and a half illiterates.

Therefore, in whatever light we look at the question, whether as a mere matter of dollars and cents, a matter of humanity, of civilization, of free government, or of mere duty to our brethren, it seems to us at the North to be a wise, a patriotic, and a practical measure of relief, not only to the Southern States, but to the whole country, to appropriate this money at once, and distribute it under the supervision of the Bureau of Education from year to year, while the treasury is overflowing, so as to bring the whole country, North and South, East and West, up to the very front rank of public education, intelligence, industry, and thrift.

The whole southern part of the educational map of the country presented in the first volume of the census of 1880 is covered with black, threatening clouds. Let us clear up our southern sky, and illuminate it with the bright sunshine of universal intelligence, before the storm that mutters at every election bursts upon us.

At the conclusion of this paper Hon. J. L. M. CURRY, LL. D., agent of the Peabody education fund, was announced as the next speaker. He thought it best to say nothing. Calls for remarks from him being repeated, however, he consented to address the meeting, and after adverting to the difficulties of his situation caused by the lateness of the hour, he proceeded to speak extemporaneously as follows:

There are two postulates which must necessarily be assumed in this discussion, which, of course, I shall not in the slightest degree elaborate; and the first is that intelligence and integrity are the basis of free representative republican institutions. Such was the opinion of the fathers, as could be easily substantiated by most numerous citations. As was expressed in that admirable paper (Professor Hall's) this morning, education is fundamental to the right discharge of the duties and functions of American citizenship. We should regard it as the greatest dereliction of duty if the scions of nobility, those who are to be kings and emperors and to wear crowns, were not trained and disciplined in early life for their civil and political duties; and it is but little short of treason, in my humble judgment, for those who are charged with responsibility in this country—a government, as Mr. Lincoln epigrammatically and forcibly expressed it, “of the people, for the people, and by the people”—to neglect the education of American citizens. Universal education, to my mind, is a *sine qua non* for the security and the prosperity of this Republic.

My next postulate is that this universal education is the work of government, and must be furnished in large measure by government action and government revenues. Universal education, in the first place, is the right of the citizen; but in the second place, and more immediately connected with the discussion of our subject to-night, it is an imperative duty. I am only stating a truism when I say that there is not a single instance in all educational history where there has been anything approximating universal education unless that education has been furnished by government. These are the postulates on which I build this brief argument.

Now, if universal education is a right and an imperative duty, my next proposition is that this primarily is the work of State governments. In our complex and federative system, States lie nearer to the people than does the National Government. All the interesting relations of life, husband and wife, parent and child, master and apprentice, guardian and ward, teacher and pupil, are relations with which the General Government has nothing to do in the first instance, but are peculiarly and specially, as every lawyer knows, within the province of the State governments; and, therefore, I hold that primarily and chiefly it is the duty of the States to furnish this education. The Northern States boldly and courageously have undertaken the work, and grandly and nobly have they performed it. The South now is following the example set. In every Southern State there is upon constitution or statute book a system of public schools modelled after the best examples of the Northern States and of European countries. Schools have been established under this system. Those schools are alike open to the white man and to the black man, to the late slave and to the late master. I do not mean that these are mixed schools; I mean, however, to assert with emphasis and positiveness that from Virginia to Texas, inclusive, precisely the same educational rights and the same educational privileges are granted to the black man as are furnished to the white man. What I have said, that the schools are open and the school money distributed upon a basis of absolute equality so far as white and black children are concerned, marks a most marvellous revolution in the history of this country. I wish I could get you to realize it. I can hardly conceive of any revolution in public sentiment, in manners, in customs, in habits, in laws, in institutions, so profound as the revolution which has taken place in the new South in the last eighteen years in reference to the public schools.

Much remains to be done. The laws are upon the statute books. A vast deal has been accomplished; but in school-houses, apparatus, school attendance, school enrolment, proper teaching, school revenues, there is a great deficiency, a very great deficiency. I need not tire you with statements after the elaborate and conclusive paper which has just been read in your hearing. What I wish to impress is that to make these schools at the South adequate to the need is a stupendous enter-

prise, not to be dealt with summarily or by temporary expedients, but by wise and liberal legislation. To the patriot, the Christian, the humanitarian, the illiteracy is absolutely appalling, and if I had a stronger word to use I should be glad to use it now in order to express the magnitude of the danger. What is vital to the subject that we are now considering is that it is impossible for the Southern States unaided, however willing they may be, to grapple with this gigantic problem. The difficulties have been suggested in part by Professor Hall—difficulties which are not realized by those unfamiliar with the habits and the people of that country. At the North population is dense; I believe about one-fifth is in cities and towns. In the South, in the rural districts, settlements are remote, communications are infrequent and imperfect, and the people very different from those in other sections of the country. Slavery sparsified population. Slavery concentrated wealth in a few hands. Slavery prevented the division of wealth among the people. Slavery created an aristocracy. Slavery made a public school system with free and universal education impossible. Thank God! slavery is gone and the negroes are irrevocably free! I never made an expression of gratitude with more sincerity than I made that declaration just now; and I beg you to remember that while I am accounting for the absence at the South of free public schools, and while I am pointing out some of the difficulties with which this question is environed and trying to deduce an argument of national obligation in consequence of this condition of affairs—I beg you to remember that the South did not introduce slavery into this country. It does not lie at her door.

Again, the South has been impoverished. It was not a poor country before the war as to aggregate wealth, but the wealth was in the hands of comparatively few; and as the result of the war the South has been impoverished. Will you just think of it for a moment, that you may take in that fact? I am not speaking of the loss of four billions of property on account of emancipation, but I wish you to consider that at the close of the war the negro himself possessed nothing but physical health and freedom, while among the white men banks were gone, insurance companies gone, all investments swept away, personal securities and negotiable notes valueless, labor disorganized, a new civilization introduced, and what had been regarded as the basis of wealth of the population of the future was all buried in one profound Serbonian bog. Reconstruction has not been easy; and I will whisper into your ears a secret which you may not have heard, that many of those who were there to reconstruct were not angels or saints made perfect. To reconstruct the government, to put back the cars which had been thrown off the track, was not by any means an easy work, but has required great courage, heroism, and patience.

I said a moment ago that the States of the South have put upon their statute books school systems. I think you would delude yourselves if you concluded that school systems because upon the statute

books are fixed or self operative. Please recall what my friend has so well spoken of, that those of us who have been friendly to the establishment of public schools have not been numerically the majority of the population of the South; that we have been waging a war against habits and traditions and the convictions of years, and, what is worse still, against this mass of unappreciative illiteracy which does not know its wants, and against what Lord Castlereagh styled the "ignorant impatience of taxation."

An increase of school revenues at the South cannot reasonably be expected. Much as has been done, it is not prudent or safe to risk public schools upon heavier taxation. To establish and to sustain are two different things. You may introduce and proclaim a constitution without giving it life. Probably there is no influence more potential on a people than the influence of the past. It is no easy matter to eradicate habits, traditions, and prejudices, the slow growth of centuries. It is supremest folly not to take account of the past. The ideal is not always the practicable. France in 1793 adopted a democratic constitution, but she foolishly forgot the centuries of monarchical and ecclesiastical despotism that lay behind. Our school systems are in antagonism to habits and traditions, and to save them and to save the Republic the General Government should give immediate and adequate aid. The discharge of an obligation belonging primarily to the States being impossible, if universal education is to be secured at all it must be by national aid.

If I were speaking before Congress or to congressmen, I believe I could demonstrate the constitutional potency of Congress to meet this evil and provide a remedy for this peril. My distinguished and able friend at the head of the Bureau of Education, among his other valuable labors, has demonstrated in a conclusive argument the power of this Government to render the national aid. The lawyers have a maxim that "the safety of the republic is the supreme law." Things are done in a time of war which the Constitution does not in terms authorize. In extreme and imminent peril, powers unusual are assumed. The question is whether this Republic is not in more peril to-day than it ever was from armies and navies arrayed in antagonism to it.

The New York Herald the other day had an outline map of the United States with the rivers all stained and blackened to represent the inundation of the great Father of Waters. A map to represent the inundation of ignorance would be more fearful and terrible than that map was; and if Congress can legislate and make an appropriation for the relief of the destitute and the suffering, how much more can Congress make an appropriation to preserve this Republic and transmit it unimpaired to those who are to come after us? I said I would not stop to argue that constitutional question, and I shall not. I place it simply on that old maxim which no one can dispute, that "the safety of the republic is the supreme law."

Hopefully, sanguinely, joyously, I look forward to and anticipate the future, and yet that man is a bold speculator and a daring prophet who says that a republican government has been established beyond the possibility of failure or destruction. Is the Republic in peril? I borrow the lucid and terse language of the paper to which I have referred when I say that the life of this Republic is one persistent, incessant struggle against ignorance. This illiteracy is due in large measure, not entirely, to the negroes, the colored people. They are not culpable for it, of course; and I hold that the Government which had power to liberate them, to citizenize them (if I may make a word), to enfranchise them, has the power to qualify them for freedom and citizenship. I quote the language, and I rejoice to quote the language, terse and truthful, of one of the most distinguished men of this land, that "slavery is but half abolished, emancipation is but half completed, while millions of freemen with votes in their hands are left without education."

Illiteracy on the part of the black man is no worse than on the part of the white man. Illiteracy is illiteracy; an ignorant voter is a peril to the perpetuity and the prosperity of our free institutions, whether that ignorant voter be a white man or a black man. Forty-five per cent. of the voting population of the South is illiterate. Three-fourths of the power in Congress to make laws may be in the hands of this illiteracy; I mean, of course, three-fourths of a majority. Illiteracy of such a multitude of white and black voters is a standing menace to free institutions; is a present, pervasive, potential peril. Elections by such men are a farce, if not a tragedy. Men vote as machines, and not as intelligent Americans. The voter is the pliant tool of the demagogue, who bids lower at each succeeding election, appeals to baser passions, and attempts more revolutionary, agrarian, communistic schemes. Whiskey and money are more influential than patriotism and reason. Justice, plighted faith, vested rights, immutable principles of truth and honor, go down before the fiery breath of the passionate and conscienceless multitude.

Universal suffrage necessitates universal education. Universal suffrage is not a panacea of all national ills; it is not always good government. In France it comported with Casareau absolutism. Coupled with a plebiscitum it was the willing ally of official candidature and Napoleonic perfidy. It is a degradation of the franchise to give it wholesale into the hands of ignorance, superstition, and pauperism. Lord Sherburne calls such lowering "the apotheosis of brute force," "the substitution of numbers for the decisions of intelligence and experience."

Mr. Hawkins says this is a Republic. True, and it was intended to be a representative Republic. A representative is not a mere deputy, a weather-cock, a blind automaton, to record the will and the passions of the multitude. He is to think for his constituents, to give them the benefit of intelligent patriotism, profound study of political economy,

the Constitution, and statecraft. He is to enrich his mind by observation, travel, study of history, and to train himself for his responsible duties. Ignorant suffrage reverses all this, and puts in public councils the weak, the vacillating, the corrupt. Fidelity to principle, courageous adherence to convictions, broad culture, ripe judgment, sage experience, will be of little worth, and the voice of the rabble becomes the interpreter of laws and contracts and the moulder of policy.

I have before me, but will not read—commending, however, to your attention—what General Grant has said on this subject, what President Hayes has said on this subject, what President Arthur has said on this subject; and I will read to you the words of President Garfield's inaugural address:

All the constitutional power of the nation and of the States and all the volunteer forces of the people should be summoned to meet this danger by the saving influence of universal education.

This aid should be given. It ought to be adequate aid. The peril is imminent; the necessity is present; the need of the people is urgent. The cancer grows worse and worse with the lapse of each day. State systems should not be superseded. The General Government should act in coöperation with State authorities, and not adopt any plan or practice or method which will subordinate them. The aid furnished ought to be given for primary education, for public schools, except in so far as may be required to train teachers, and in my judgment the aid should be coöperative and stimulating. The principle of the Peabody fund, by means of which the fund has multiplied its benefits four-fold, is to help those who help themselves. While the Government has the right and is in duty bound to follow the appropriation, to see that the money is properly applied, it ought to stipulate that so much will be done provided that the State will do more, so that the States in a few years will execute unaided this imperative obligation of providing an education for all their citizens.

Allow me to thank you for your patient attention and for the kindness with which you insisted at this late hour on my making these remarks, necessarily incoherent because unprepared.

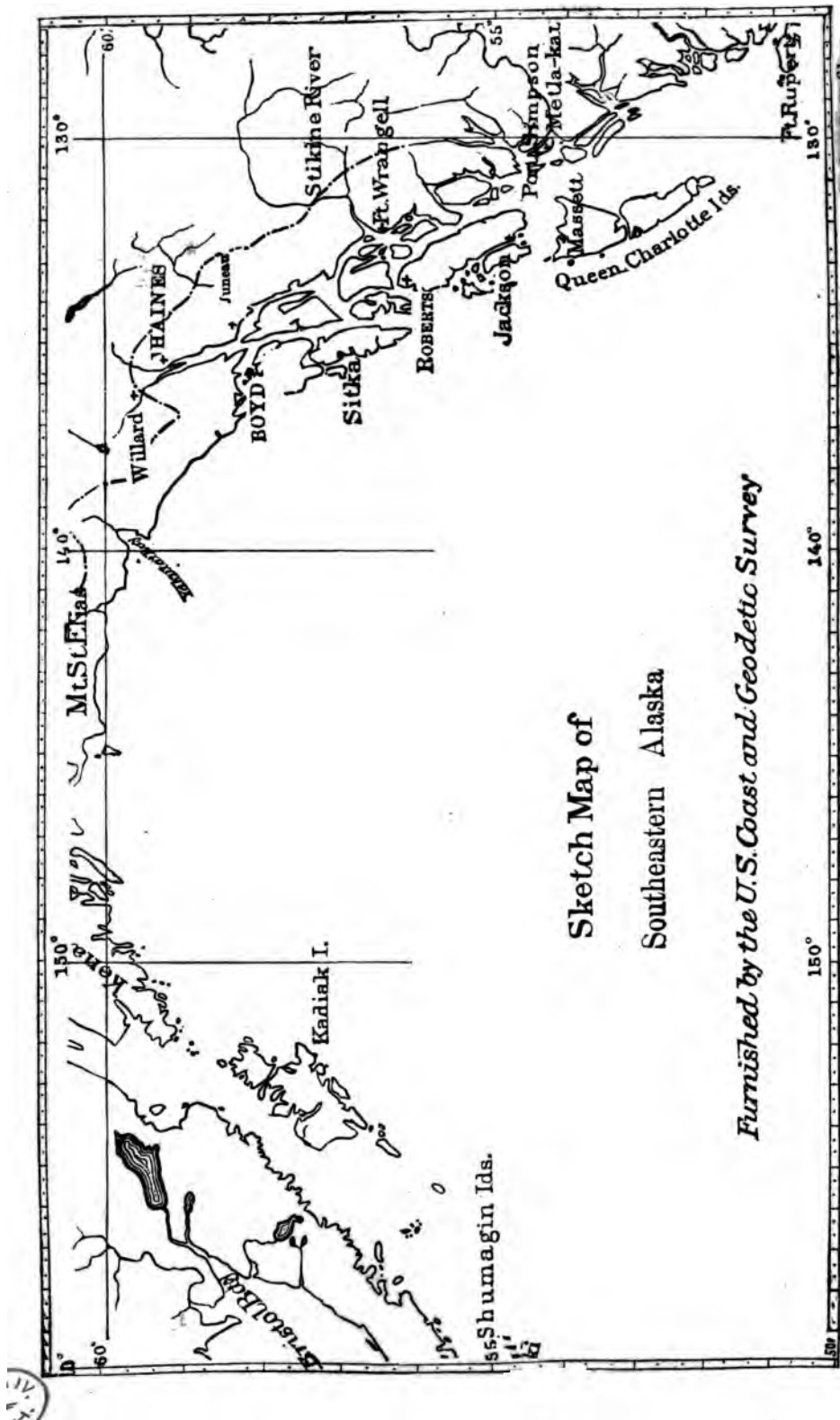
The Department then adjourned, to meet in the same place at 10 o'clock on the following morning.

THIRD SESSION—THURSDAY MORNING.

WASHINGTON, *March 23, 1882.*

The meeting was called to order at 10 A. M., Mr. Stockwell in the chair, and was opened by prayer by Rev. SHELDON JACKSON, D. D.

General EATON read telegrams regretting inability to attend the meetings from Hon. J. D. Pickett, State superintendent of public instruction, Frankfort, Ky.; W. T. Harris, LL. D., Concord, Mass.; and Hon. A. D. White, LL. D., president of Cornell University, Ithaca, N. Y.; to-



Sketch Map of

Southeastern Alaska

Furnished by the U.S. Coast and Geodetic Survey

gether with letters from Hon. L. S. Cornell, State superintendent of public instruction, Denver, Colo.; Hon. James P. Slade, State superintendent of public instruction, Springfield, Ill.; Hon. H. C. Speer, State superintendent of public instruction, Topeka, Kans.; Hon. D. L. Kiehle, State superintendent of public instruction, St. Paul, Minn.; Hon. J. A. Smith, State superintendent of public education, Jackson, Miss.; Hon. J. W. Patterson, State superintendent of public instruction, Concord, N. H.; Hon. Neil Gilmour, State superintendent of public instruction, Albany, N. Y.; Hon. R. H. Howey, territorial superintendent of public instruction, Helena, Mont.; George B. Lane, superintendent of schools, Omaha, Nebr.; John E. Kimball, superintendent of schools, Newton, Mass.; John Hancock, superintendent of schools, Dayton, Ohio; William Simons, superintendent of schools, Charleston, S. C.; J. W. Bulkley, assistant superintendent of schools, Brooklyn, N. Y.; B. M. Zetter, superintendent of schools, Bibb County Ga.; H. M. Parker, superintendent of schools, Elyria, Ohio; George W. Twitmyer, superintendent of schools, Watsontown, Pa.; J. Fairbanks, school commissioner of Greene County, Mo.; J. M. Fish, superintendent of schools, Little Rock, Ark.; John W. Taylor, superintendent of schools, San Francisco, Cal.; N. A. Calkins, vice president of the department of superintendence, New York; President E. E. White, Purdue University, Lafayette, Ind.; J. P. Wickersham, LL. D., ex-State superintendent of public instruction, Lancaster, Pa.; Prof. W. H. Payne, Ann Arbor, Mich.; T. W. Bicknell, LL. D., Boston, Mass.; and E. J. James, PH. D., Normal, Ill.

Mr. SHELDON read a memorial in regard to the late Bernard Mallon, of Georgia.

Rev. SHELDON JACKSON, D. D., was then introduced, who spoke as follows:

THE NEGLECT OF EDUCATION IN ALASKA.

MR. PRESIDENT AND FRIENDS OF EDUCATION: So little is known concerning Alaska, the latest acquired and least known section of our country, that I am sure you will welcome a few general remarks concerning the country as a prelude to the subject of the education of its people.

EXTENT AND PHYSICAL CHARACTERISTICS.

To say that Alaska contains 580,107 square miles gives no adequate conception of its great size. That impression is better secured by a series of relative comparisons.

For instance, from extreme north to south is 1,400 miles in an air line, or as far as from Maine to Florida; and from its eastern boundary to the end of the Aleutian Islands, 2,200 miles in an air line, or as far as from Washington to California.

The island of Attu, at the end of the Aleutian chain, is as far west

of San Francisco as Maine is east; so that between the extreme eastern and western sections San Francisco is the great central city.

Or take another basis of comparison: Alaska is as large as all the New England and Middle States, together with Ohio, Indiana, Illinois, Wisconsin, Michigan, Kentucky, and Tennessee combined, or as large as all the United States east of the Mississippi River and north of Georgia and the Carolinas, or nearly one-sixth of the entire area of the United States. It has a coast line of 25,000 miles, or two and a half times more than the Atlantic and Pacific coast lines of the remaining portion of the United States. The coast of Alaska if extended in a straight line would belt the globe. Commencing at the north shore of Dixon Inlet, in latitude $54^{\circ} 40'$, the coast sweeps in a long regular curve north and west to the entrance of Prince William's Sound, a distance of 550 miles; thence 725 miles south and west to Unimak Pass, at the end of the Aliaska Peninsula. From this pass the Aleutian chain of islands sweep 1,075 miles in a long curve almost to Asia, the dividing line between Russia and the United States being the meridian of 193° west longitude. North of Unimak Pass the coast forms a zigzag line to Point Barrow, on the Arctic Ocean, and thence south of east to the boundary.

Alaska is the great island region of the United States, having off its southeastern coast a large archipelago. The 732 miles of latitude from Puget Sound to the head of Lynn Channel contain a remarkable stretch of inland ocean navigation, noted for its bold shores, deep water, numerous channels, innumerable bays and harbors, abundance of fuel and fresh water, and shelter from the swells of the ocean.

The southern portion of this great archipelago is in Washington Territory, the central portion in British Columbia, and the northern portion in Alaska. The portion in Alaska has been named the Alexander Archipelago. It is about 300 miles north and south and 75 miles wide, and is variously estimated to contain from 1,000 to 10,000 separate islands. The aggregate area of these islands is 14,142 square miles.

Six hundred miles to the westward is the Kadiak group, aggregating 5,676 miles; then the Shumagin group, containing 1,031 square miles; and the Aleutian chain, with an area of 6,391 square miles. To the northward is the Pribyloff group (seal islands), containing, with the other islands in Bering Sea, 3,963 square miles.

The total area of the islands of Alaska is 31,205 square miles, which would make a State as large as the great State of Maine.

It is the region of the highest mountain peaks in the United States. The Coast Range of California and the Rocky Mountain Range of Colorado and Montana unite in Alaska to form the Aliaskan Mountains. This range, instead of continuing northward to the Arctic Ocean, as the old atlases represent, turns to the southwestward, extends through and forms the Aliaska Peninsula, and then gradually sinks into the Pacific Ocean, leaving only the highest peaks visible above the water.

These peaks form the Aleutian chain of islands. The islands decrease in size, height, and frequency as the mountain range sinks lower into the ocean. Unimak, the most eastern of the chain, has that magnificent volcano Shishaldin, 9,000 feet high; then Unalashka, 5,691 feet; next Atka, 4,852 feet; then Kyska, 3,700 feet; and Attu, the most western of the group, only 3,084 feet high.

In the Aliaskan Range are the highest peaks in the United States: Mount St. Elias, 19,500 feet high; Mount Cook, 16,000 feet; Mount Crillon, 15,900; Mount Fairweather, 15,500, and numerous others. In addition to the Aliaskan Range, are the Shaktolik and Ulukuk Hills, near Norton Sound; the Yukon and Romanzoff Hills, north of the Yukon River; the Kaiyuh and Nowikakat Mountains, east and south of the river, and a low range of hills bordering the Arctic coast.

Alaska contains the great volcanic system of the United States. Grewingk enumerates 61 volcanoes, mainly on the Aliaska Peninsula and Aleutian Islands, that have been active since the settlement by Europeans.

It is the great glacier region. From Bute Inlet to Unimak Pass nearly every deep gulch has its glacier, some of which are vastly greater and grander than any glacier of the Alps.

On Lynn Channel is a glacier computed to be 1,200 feet thick at the "snout" or lower projection. In one of the gulches of Mount Fairweather is a glacier that extends fifty miles to the sea, where it ends abruptly in a perpendicular ice wall 300 feet high and eight miles broad. Thirty-five miles above Wrangell, on the Stikine River, between two mountains 3,000 feet high, is an immense glacier forty miles long and at the base four to five miles across, and variously estimated from 500 to 1,000 feet high or deep.

Alaska abounds in hot and mineral springs. According to Dall, there are large ones south of Sitka; also on Perenosna Bay, on Amagat Island, and Port Moller. On Unimak Island is a lake of sulphur. Near the volcano Pogrumnoi are hot marshes. Boiling springs are found on the islands Akhun, Atka, Unimak, Adakh, Sitignak, and Kanaga. These latter have for ages been used by the natives for cooking food. In the crater of Goreloi is a vast boiling, steaming mineral spring eighteen miles in circumference. A lake strongly impregnated with nitre is found on Beaver Island. The thermal springs on the island of Unalashka hold sulphur in solution.

The northern portion of the Territory, within the Arctic Circle, is famous for its beautiful auroral displays.

Alaska contains one of the largest rivers of the United States. The river Yukon is 70 miles wide across its five mouths and intervening deltas. At some points along its lower course one bank cannot be seen from the other. For the first thousand miles it is from one to five miles wide, and in some places, including islands, it is 20 miles from

main bank to main bank. Navigable for 1,500 miles, it is computed to be 2,000 miles long.¹

The other principal rivers of the Territory are the Stickine, 250 miles long; the Chilkat; the Copper; the Fire; the Nushergak, a large shallow stream 150 miles long; the Kooskovine, next to the Yukon in size, and between 500 and 600 miles long; the Tananah, 250 miles (this river is half a mile wide at its mouth, with a very strong current); the Nowikakat, 112 miles; and the Porcupine. The last three are tributaries of the Yukon. The only river of any size flowing into the Arctic Ocean is the Colville, for a long time supposed to be the outlet of the Yukon.

PRODUCTS OF ALASKA.

Alaska is rich in material resources.

The chief value of Alaska to Russia was its wonderful fur supplies; and when the Territory was sold to the United States the most prominent attraction was the seal fur fisheries on the Pribyloff group of islands, in Bering Sea. To protect these valuable interests the Government leased these islands for twenty years to an incorporated company known as the "Alaska Commercial Company." They pay the Government an annual rental of \$55,000 for the islands and a royalty of \$262,500 a year on the 100,000 seal skins allowed by law to be taken.

Thus these two little islands—St. Paul, 13 miles long and 6 wide, and St. George, 10 miles long and 6 wide—furnish nearly all the seal skins used in the markets of the world, and have paid a revenue into the United States Treasury from 1871 to 1882 of over three million dollars; and yet it is thought by some that Alaska was a worthless purchase.

The Alaska Company has a number of trading stations in addition to its seal fisheries.

The next most valuable fur is that of the sea otter. In 1880 these skins were quoted at from \$20 to \$200 each.

The principal land fur bearing animals are the several varieties of the fox, the mink, beaver, marten, lynx, otter, bear, and wolverine. There are also the skins of the whistler, reindeer, mountain goat and sheep, ermine, marmot, muskrat, and wolf.

The waters and coast of Alaska abound in fish. Every naval or scien-

¹ Since making this address I have received a copy of a letter written by Robert Campbell, of the Hudson's Bay Fur Company, to Hon. M. C. Butler, United States Senate, in which Mr. Campbell represents the Yukon and its tributary Pelly as navigable at certain seasons nearly 3,000 miles. Mr. Campbell says: "In the spring of 1840 * * * I crossed the mountains and came on the headwaters of a magnificent stream, which I named the 'Pelly River.' * * * In 1850 I received permission to explore the Pelly down to its mouth, * * * in due time reaching Fort Yukon, * * * setting the question at rest that the Pelly and Yukon were one and the same river. * * * Three kinds of salmon ascend the river as far as Pelly Banks, which is about three thousand miles from sea-coast. * * * When in full freshet flow in summer steamers could ascend to within 30 miles of Pelly Banks." S. J.



Chitket School-House and Teacher's Residence, Haines, Alaska.

[To face page 14.]

tific expedition, from the time that Captain Cook in circumnavigating the globe visited those waters to the present time, has not failed to report the great quantities of salmon, cod, herring, halibut, mullet, ulikon, and other fish of commerce.

Cod are found from the Seal Islands southward, but are most abundant on the banks in the Kadiak and Aleutian Archipelagoes. Three San Francisco firms engaged in the business caught 3,000 tons during 1879 on the banks off the Shumagin Islands.

Alaska can also supply the world with salmon, herring, and halibut of the best quality. Salmon canneries have been established near Sitka, at Klawak, and at Kasa-an Bay.

Alaska is the great reserve lumber region of the United States. It is only a question of a few years when the forests of Maine, Michigan, Wisconsin, Minnesota, and even Puget Sound will be denuded of their best timber. Then the country will appreciate those thousands of square miles of yellow cedar, white spruce, hemlock, and balsam fir that densely cover the southeastern section of Alaska.

The indications are that Alaska is very rich in minerals. Coal is found all along the coast. The most valuable of the known deposits are found in Cook's Inlet. Coal has also been taken and used by the United States revenue marine steamer Corwin from the Arctic coast.

Petroleum is found floating on a lake near the Bay of Katmai. It is quite odorless, and in its crude state has been used by the Russians for lubricating machinery. Large deposits have also been found on Copper River.

Specimens of pure copper have been found in many places. It is so abundant on Copper River as to give its name to that stream. At Kasa-an Bay a valuable mine of bronze copper is being worked by an English company. Lead in small quantities is found on Whale Bay, south of Sitka, and also in Kadiak Island.

Iron is common to many sections of the territory. Graphite is found at several places. A fine quality of marble exists in inexhaustible quantities. A fine quality of bismuth is found on Vostovia Mountain. Kaoline, fire clay, and gypsum are also found. Sulphur exists in large quantities. Amethysts, zeolites, garnets, agates, carnelians, and fossil ivory are found. Indeed, the people of the United States have no conception of the mineral wealth of Alaska.

Gold is found in a number of places and supposed to exist in many others. Up the Stikine River, through Alaska, over on the headwaters of Deese River, are the Cassiar mines of British Columbia, where from 2,000 to 3,000 miners have spent several summers in placer mining. The annual product of these mines has been from \$800,000 to \$1,000,000.

During 1881 gold mines, both placer and quartz, were opened on Gastineaux Channel, opposite Douglass Island, Alaska, where the American town of Juneau was built. The yield for the first summer was over \$30,000.

CLIMATE.

In a country as extended as Alaska, with its large rolling plains, wide valleys, and high mountains, there is necessarily a wide diversity of climate. In a general way it may be said that inland Alaska has an arctic winter and a tropical summer. At Fort Yukon the thermometer often rises above 100° in summer and indicates from 50° to 70° below zero in winter. At Nulato, on the Yukon River, the fall of snow during the winter averages 8 feet and frequently reaches 12 feet. Along the immense southern coast and islands the climate is moist and warm.

The greatest cold recorded on the island of Unalashka, by a Greek priest, during a period of five years, was zero of Fahrenheit; extremest heat for the same time was 77° . The average for five years at 7 A. M. was 37° ; 1 P. M., 40° ; and 9 P. M., 36° . The average of weather for seven years was 53 all clear days, 1,263 half clear, and 1,235 all cloudy. It is very much the climate of Northwestern Scotland.

At St. Paul Harbor, Kadiak Island, the mean annual summer temperature is 54° and winter 29° ; the coldest month, February, with the thermometer at 27° ; and the warmest, July and August, with a mean temperature of 57° , the extremes being from 6° to 75° . The climate is that of Southern Sweden and Norway. The annual rainfall is about 73 inches.

At Sitka, where, with the exception of a few short gaps, a record of the thermometer has been kept for 45 years, it has been found that the mean spring temperature was 41.2° ; summer, 54.6° ; autumn, 44.9° ; winter, 32.5° ; and for the entire year, 43.3° . The greatest degree of heat recorded in these 45 years was 87.8° , and of cold 4° below zero. The thermometer has recorded below zero during only four of the 45 years, and above 80° during only seven of those years. The mean annual temperature for 45 years has ranged from 41.3° to 46.8° , a difference of but 5.5° . The annual rainfall was 81 inches.

During a period of 43 years there has been an average of 200 rainy or snowy days a year, the most favorable year being 1833, with 82 rainy and 32 snowy days, and the most unfavorable 1856, with 258 rainy and 27 snowy days.

From these facts, taken from the Alaska Coast Pilot, Appendix 1, Meteorology, A. D. 1880, the surprising fact is brought to light that the winter climate of Southeastern Alaska for 45 years past has been the average winter climate of Kentucky and West Virginia and the average summer climate of Minnesota.

This mild climate of Southern Alaska is due to the warm Japan current of the Pacific, the Kuro-Siwo, which first strikes the American continent at the Queen Charlotte Islands, in latitude 50° north. Here the stream divides, one portion going northward and westward along the coast of Alaska and the other southward along the coast of British Columbia, Washington, Oregon, and California, giving them their mild winter climate.

The former stream, flowing northward, has been named "the Alaska current," and gives the great southern coast of Alaska a winter climate as mild as that of one-third of the United States.

The physical configuration of Alaska naturally divides it into three districts: the Yukon, extending from the Alaskan range of mountains to the Arctic Ocean; the Aleutian, embracing the Aliaska Peninsula and islands west of the one hundred and fifty-fifth degree of longitude; and the Sitkan, including Southeastern Alaska.

Concerning the Yukon district but little is known, except of the coast and along the Yukon River.

The Coast Pilot, a publication of the United States Coast Survey, represents the country between Norton Sound and the Arctic Ocean as "a vast moorland, whose level is only interrupted by promontories and isolated mountains, with numerous lakes, bogs, and peat-beds. Wherever drainage exists, the ground is covered with a luxuriant herbage and produces the rarest as well as most beautiful plants. The aspect of some of these spots is very gay. Many flowers are large, their colors bright, and though white and yellow predominate, other tints are not uncommon. Summer sets in most rapidly in May, and the landscape is quickly overspread with a lively green." The extreme heat and constant sunshine cause it to produce rank vegetation. The commercial value of this section is mainly in its furs.

The Aleutian district is largely mountainous and of volcanic formation. Between the mountains and the sea are, however, many natural prairies, with a rich soil of vegetable mould and clay, covered with perennial wild grasses.

This district, except at the eastern end, is without timber larger than a shrub. The principal resource at present is in the wonderful fisheries off its coast.

The Sitkan district is mountainous in the extreme, and the larger portion covered with dense forests. The great wealth of this district is in its lumber, fish, and minerals. Many garden vegetables are raised with success.

With regard to Alaska, Mr. William H. Dall, of the Smithsonian Institution, writes, after a trip to Europe: "I come back convinced, from personal inspection, that Alaska is a far better country than much of Great Britain and Norway, or even part of Prussia."

MEANS OF COMMUNICATION.

The routes of travel to Alaska are not very numerous. A steamer carrying the United States mail between Port Townsend, Washington Territory, and Fort Wrangell and Sitka, Alaska, makes a monthly trip.

Two small steamers run at irregular intervals during the summer from Victoria, B. C., to Fort Wrangell, calling en route at the several trading posts on the coast of British Columbia.

The country west of Sitka, including the Aleutian Islands and the

great interior and main section of the territory, is reached from San Francisco; so that a citizen of Oregon, in order to reach Kadiak, Unalashka, the seal islands, St. Michael, or the numerous villages on the Yukon River, is under the necessity of going by the way of San Francisco. From this latter place there is frequent communication with Western Alaska, and once a year with the central and northern sections.

POPULATION.

The census of 1880 gives the following enumeration: Yukon division, 7,000; interior division, 2,226; Kuskokwim, 3,654; Bristol Bay, 4,340; Kadiak, 2,606; Kenai, 984; Belkovsky, 669; Unalashka, 1,392; islands in Bering Sea, 1,290; Prince William Sound, 500, and Southeastern Alaska, 6,725; making 31,386, of whom about 18,000 are supposed to be Eskimo or Innuít. In addition to the above are about 1,500 whites in Southeastern Alaska, mainly traders and miners.

The Aleutian population and a portion of the Innuits were so far brought under the influence of the Russians that they became civilized, and are living after European methods. Among these the Greek Church of Russia claims from 8,000 to 9,000 members.

The remaining Innuít and Indian population are largely in their original condition.

EDUCATION UNDER THE RUSSIAN GOVERNMENT.

Information concerning Russian schools in Alaska is very meagre, the available source to the English reader being the admirable work of William H. Dall, *Alaska and its Resources*, pages 351 and 352. The first European settlers were Russians, attracted by the valuable furs and skins. Many of these married Indian women and raised families of mixed blood or creoles. As these children increased and grew up there began to be, on the part of some of the fathers, a felt need for schools. Accordingly, Gregory Shélikoff, governor of the colony and founder of the Russian-American Fur Company, established a school at Kadiak, about the year 1792, which was taught by the trader. In 1803 it reported 30 pupils, who were studying arithmetic, navigation, and four mechanical trades. In 1805 the imperial chamberlain and commissioner, Count Nikolai Resánoff, organized a school at Kadiak, under the name of the "House of Benevolence of the Empress Maria," in which were taught the Russian language, arithmetic, and the Greek religion. This school was reorganized in 1820.

About the same time a school was opened at Sitka, with a very precarious existence until 1820, when it came under the charge of a naval officer, who kept a good school for thirteen years. In 1833 this school came under the direction of Etolin, who still further increased its efficiency. Etolin was a creole who, by the force of ability and merit, raised himself to the highest position in the country, that of chief director of the Fur Company and governor of the colony. He was a Lu-



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Sitka, Alaska.

theran, the patron of schools and churches. While governor he erected a Protestant church at Sitka, and presented it with a small pipe-organ, which is still in use.

In 1825, Veniaminoff, who afterwards became the metropolite of Moscow, established a school for natives and creoles at Unalashka. In 1860 it reported 50 boys and 43 girls. This school is still in existence, but with a small and irregular attendance. It is supported at the expense of the Alaska Commercial Company. For the use of the schools, Veniaminoff prepared an alphabet and grammar in the Aleutian language. In 1837 a school was established for girls, children of the employés of the Fur Company, and orphans. In 1842 it had 42 pupils, and 22 in 1862 when it disbanded.

In 1840 there were in the colonies 8 schools, 4 for boys and 4 for girls. Besides the colonial school at Sitka was one for orphan boys and sons of workmen and subaltern employés of the Fur Company, in which were taught reading, writing, arithmetic, grammar, mechanical trades, and religion. The most proficient of the pupils at the age of 17 were advanced to the colonial school and prepared for the navy or priesthood. The number of boarders was limited to 50. The school was in charge of Lieutenant Commander Prince Maxutoff, assistant governor of the colony. In 1847 the attendance was 52; in 1849, 39; and in 1861, 27.

In 1839 a girls' school of a similar character was established and number of boarders limited to 40. The course of study comprised Russian language, reading, writing, arithmetic, household work, sewing, and religion. In 1848 the school numbered 32; in 1849, 39; and in 1861, 26.

In 1841 a theological school was established at Sitka, which in 1845 was advanced to the grade of a seminary. In 1848 it reported 30 boarders, 12 day pupils and 12 creoles being educated in Russia. Of those in Russia, 2 were in training for pilots, 1 as merchant, 1 gunsmith, 1 fur dealer, 1 tailor, and 1 cobbler. In 1849 the attendance was reported 28, with 11 others in Russia.

In 1859 and 1860 the common schools at Sitka were remodelled in order to secure greater efficiency. The course of study consisted of Russian, Slavonian, and English languages, arithmetic, history, geography, book-keeping, geometry, trigonometry, navigation, astronomy, and religion. A knowledge of Russian, reading, writing, and the four rules of arithmetic was required for admission. A pupil failing to pass examination two years in succession was dropped. The course extended over five years. Extra compensation was allowed teachers who secured the best results. The faculty consisted of a principal, who was a graduate of the School of Commercial Navigation; a free pilot, who taught navigation; an employé of the company, who taught book-keeping and commercial branches; one priest and two licentiates, graduates of the University of St. Petersburg.

The corresponding school for girls was in charge of a lady graduate of one of the highest female schools in Russia, with two male teachers.

This made five schools at Sitka: two for the children of the lower class, two for the higher class, and one seminary.

On Spruce Island a Russian monk kept a school for thirty consecutive years for giving instruction in the rudimentary arts and agricultural industries.

In 1860 a school was reported on Amlia Island, with 30 in attendance. All these schools have been discontinued. A school-house was erected on the Lower Yukon, but never used. The result of these schools, especially among the Aleuts, is thus summed up by Hon. W. S. Dodge, of Sitka:

Nearly all of them read and write. Around their homes, in their churches and schools, are seen many if not all the concomitants of ordinary American homes. Many among them are highly educated, even in the classics. The administration of the Fur Company often reposed great confidence in them. One of their best physicians was an Aleutian; one of their best navigators was an Aleutian; their best traders and accountants were Aleutians.

EDUCATION SINCE THE PURCHASE.

In 1867 Alaska, with its inhabitants, became a part of the United States. The schools sustained by the Fur Company, representing the Russian government, were disbanded. It was reasonable, however, to suppose that 30,000 people would be much better off and have better schools under American than under Russian rule. It was but reasonable to expect that the United States, that bases its continued existence upon the intelligence of its citizens and glories in its common school system, would replace the disbanded Russian schools with those of a higher grade and improved methods; that a people who, through their State systems, practically furnish a free education to all, and through their General Government appropriate thousands of dollars annually for Indian education and civilization, would not neglect to extend school privileges to the natives of their latest acquired territory; for whatever may have been the views held as to the expediency of the purchase, all will admit that, having acquired it, the Government is bound to care for it.

But these reasonable and just expectations have not been realized. The Government, with two exceptions that will hereafter be mentioned, has done nothing. The schools once taught by the Russian priests have one after another died, until only two remain—those of Unalashka and Belkovsky—and, according to the census of 1880, the average attendance at these is less than ten of both sexes. They are also irregularly kept. If only one or two appear at school time, the session is adjourned until more arrive, or even to the next day. No English is taught and only the rudiments of Russian. The children of those who learned to read and write in the Russian schools, deprived of schools by the neglect of the Government, are left to grow up in ignorance, until, among the 7,000 or 8,000 members of the Græco-Russian Church, the census reports less than 400 able to read or write in the Aleutian, Kadiak, or Russian languages. Outside of the Aleuts and a few at Sitka, among the



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Fort Wrangell, Alaska.

Eskimos and Indian population none can read or write except those that during the past four years have attended the schools established by the Presbyterian Church in Southeastern Alaska.

For ten years after the purchase the entire population, with the exception of the two small Russian schools previously mentioned and two small ones on the Seal Islands, were left without any educational opportunities whatever.

In 1877 my attention was earnestly called to this state of things, and since that time I have made three visits to Southeastern Alaska, and secured for the Board of Home Missions of the Presbyterian Church the establishment of five schools in Southeastern Alaska. The movement, however, commenced from without, and was the result of mission schools among the neighboring tribes in British Columbia.

Fort Wrangell schools.—In the spring of 1876 nine Tsimpshean Indians came up the coast from Fort Simpson, British Columbia, and took a contract for cutting wood for the military post then at Fort Wrangell, Alaska. On the Sabbath, as was their custom, they gathered for worship. They found a warm friend in Capt. S. P. Jocelyn, of the Twenty-first United States Infantry, who was then in command at that station. He assisted them in procuring a room for Sabbath worship and protected them from interruptions. He also supplied them with some small hymn-books sent to the fort by the American Tract Society. At the close of their contract, in the fall, as they were about returning to Fort Simpson, Clah, who had been the leader among these Indians, was persuaded to remain and open a school. Such was the anxiety of the people to learn that his school was attended by 60 to 70 adults besides children. "These people," said a sailor, "are crazy to learn. Going up the beach last night, I overheard an Indian girl spelling words of one and two syllables. Upon looking into the house, I found that, unable to procure a school book, she was learning from a scrap of newspaper that she had picked up."

Touched by the eagerness of this people to learn, a soldier at the post wrote to Major-General Howard, then in command of that military district, asking if some society could not be interested to send them a competent teacher. The letter was placed in my hands in May, 1877, and immediately published in the Chicago Tribune. Soon after it was published in the leading Presbyterian newspapers of the country, with a call for a teacher.

To gain a better understanding of this movement of the natives for a school, I made them a visit in August, 1877. In passing through Portland I found a teacher who had had large experience in mission work and Indian schools—Mrs. A. R. McFarland—whom I took with me. Going ashore upon our arrival, August 10, I heard the ringing of the bell for the afternoon school, and went directly to the school-house.

About twenty pupils were in attendance, mostly young Indian women. Two or three boys were present; also, a mother and her three little chil-

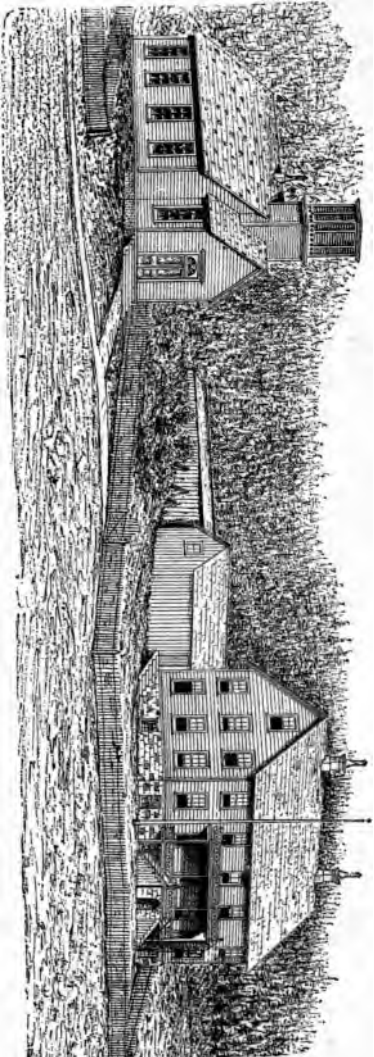
dren. As the women took their seats on the rough plank benches each one bowed her head in silent prayer, seeking divine help in her studies. Soon a thoughtful Indian man of about twenty-five years of age came in and took his seat behind the rude desk. The familiar hymn "What a friend we have in Jesus" was sung in English; a prayer followed in the Chinook jargon, which is the common language of the various tribes on this coast, closing with the repetition, in concert, of the Lord's Prayer in English. After lessons were studied and recited, the school arose, sung the long-metre doxology, and recited in concert the benediction. Then the teacher said, "Good afternoon, my pupils," to which came the kindly response, "Good afternoon, teacher."

The school was in full operation, but under great difficulties. They greatly needed maps and charts; they were also in great need of a school-house. At the time of my visit they were renting a dance-hall for a school-room. Upon the return of the miners for the winter, the hall had to be given up, and the school was held in a dilapidated log house. I found that their stock of books inventoried as follows: four small Bibles, four hymn books, three primers, thirteen first readers, and one wall chart.

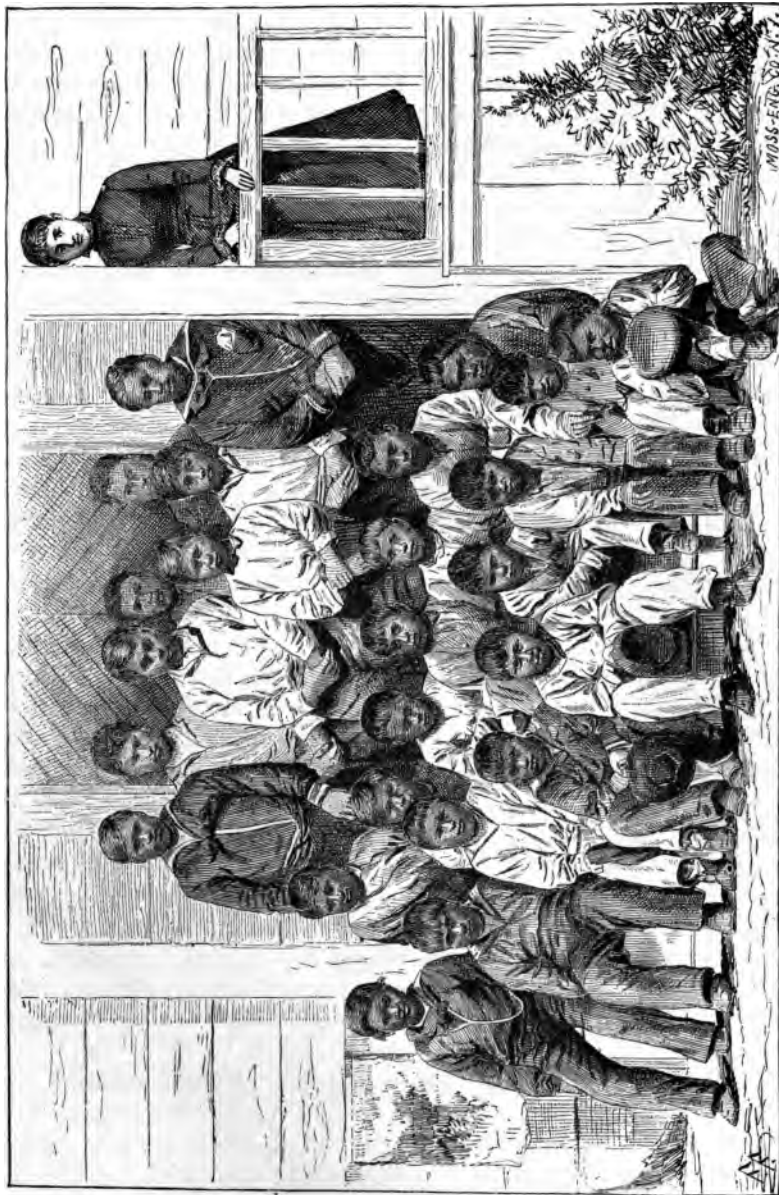
Mrs. McFarland was at once placed in charge of the school, with Clah as an assistant and Mrs. Sarah Dickinson, a Christian Tongass Indian, as interpreter. Early in the history of her school, Mrs. McFarland found a difficulty in holding her girl pupils. According to the customs of their people, they were frequently hired or sold by their own mothers to white traders, miners, and others for base purposes. And the brighter the girl the greater her danger; for, as she improved in the school, she began to dress more neatly, comb her hair, and keep her person more cleanly; the dull, stolid cast of countenance gave way to the light of intelligence, and she began to be more attractive, and consequently in greater demand. To save these girls necessitated the establishment of a "home" into which they could be gathered, and thus taken out from under the control of their mothers. Consequently a home was added to the school in October, 1878, and kept in what was formerly the hospital building of the military post.

In July, 1879, I made my second trip to Alaska, in company with Rev. Dr. Henry Kendall, senior secretary of the Presbyterian Board of Home Missions. We took out with us Miss Maggie J. Dunbar, to take charge of the school, while Mrs. McFarland gave her whole time to the "home," which has since been named the McFarland Home, and has now 30 inmates, representing thirteen different tribes.

The average attendance of day pupils during the season of 1880-'81 was 60. This is now so largely increased that two additional teachers have been appointed. During the season of 1879 I provided for the erection of a large two-story building, with basement and attic, 40 by 60 feet, for the use of the home and school, which has since been completed at an expense of \$7,600. In August, 1878, Rev. S. Hall Young



Presbyterian Church and McFarland Home, Fort Wrangell, Alaska. [To face page 72.



Sheldon Jackson Indian School, Sitka, Alaska.

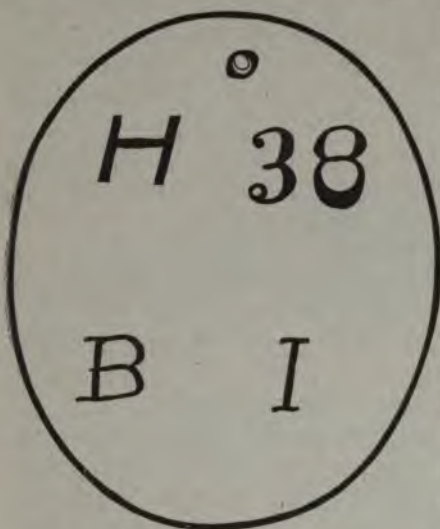
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was sent out to take charge of the mission church at Fort Wrangell. In June, 1879, Rev. W. H. R. Corlies and family reached Wrangell as volunteer teachers. Mrs. Corlies at once opened a school on the beach for the children of the visiting Indians, of whom there are sometimes as many as a thousand. These come from all parts of the coast for the purposes of trade. They see what is being done by the teachers and carry away the leaven with them. This school on the beach has exerted a very wide influence and created a demand for schools among several of the tribes. During the long winter evenings a night school has been carried on for the adults by Messrs. Young and Corlies.

Sitka schools.—In the winter of 1877-'78 I secured the appointment of Rev. John G. Brady for Sitka, and in April, 1878, a school was opened by Mr. Brady and Miss Fannie E. Kellogg. In December, through a combination of circumstances, it was discontinued. In the spring of 1880 Miss Olinda Austin was sent out from New York City, and reopened the school April 5 in one of the rooms of the guard-house, with 103 children present. This number increased to 130. Then some of the parents applied for admission, but could not be received, as the room would not hold any more. Miss Austin received the support and substantial assistance of Captain Beardslee, then in command of the United States ship Jamestown, who proved himself a warm friend of the enterprise. In July the school was moved to the old hospital building. In November some of the boys applied to the teacher for permission to live at the school-house. At home there was so much drinking, talking, and carousing that they could not study. The teacher said she had no accommodations, bedding, or food for them. But they were so much in earnest that they said they would provide for themselves. Upon receiving permission, seven Indian boys, thirteen and fourteen years of age, bringing a blanket each and a piece of tin for a looking-glass, voluntarily left their homes and took up their abode in a vacant room of one of the Government buildings. Thus commenced the boarding department of the Sitka school. Soon other boys joined them. One was a boy who had been taken out and shot as a witch, but was rescued by the officers of the Jamestown and placed in the school. Capt. Henry Glass, who succeeded Captain Beardslee in command of the Jamestown, from the first, with his officers, took a deep interest in the school. As he has had opportunity he secured boys from distant tribes and placed them in the school, until there are 27 boys in the boarding department.

In February, 1881, Captain Glass established a rule compelling the attendance of the Indian children upon the day school, which was a move in the right direction and has worked admirably. He first caused the Indian village to be cleaned up, ditches dug around each house for drainage, and the houses whitewashed. These sanitary regulations have already greatly lessened the sickness and death rate among them. He then caused the houses to be numbered, and an accurate census taken of

the inmates, adults, and children. He then caused a label to be made of tin for each child, which was tied around the neck of the child, with his



or her number and the number of the house on it, so that if a child was found on the street during school hours the Indian policeman was under orders to take the numbers on the labels and report them, or the teacher each day would report that such numbers from such houses were absent that day. The following morning the head Indian of the house to which the absentee belonged was summoned to appear and answer for the absence of the child. If the child was wilfully absent, the head man was fined or imprisoned. A few cases of fine were sufficient. As soon as they found the captain in ear-

nest, the children were all in school. This ran the average attendance up to 230 and 250, one day reaching, with adults, 271. In April Mr. Alonzo E. Austin was associated with his daughter in the school and Mrs. Austin was appointed matron. A fuller account of these schools at Fort Wrangell and at Sitka, together with the Indian schools in British Columbia, is to be found in a book published by Dodd, Mead & Co., 755 Broadway, New York City: *Alaska, and Missions on the North Pacific Coast*.

Russian school at Sitka.—In the fall of 1879, through a private effort made by Captain Beardslee, the officers of the United States ship *Jamestown*, and the citizens of Sitka, a school was opened by Alonzo E. Austin for the white and Russian children, with an average attendance of 45 to 55. When, in the spring of 1880, Mr. Austin went into the Indian school, he was succeeded by his second daughter, who left in August to teach an Indian school among the Hoonyahs. Miss Austin was succeeded by Mrs. Zechard, who is now in charge.

Takoo.—During the summer of 1880, Rev. and Mrs. W. H. R. Corlies carried on a temporary school among the Takoos.

Haines.—In the summer of 1880, Mrs. Sarah Dickinson, a Christian Tongass Indian, was sent to open a school at the store of the Northwest Trading Company, among the Chilkats, at the head of Lynn Channel. During the past summer I erected at that point a residence for the teachers and provided a school building, leaving Rev. E. S. Willard, of Illinois, in charge, with a flourishing school of 65 pupils.

Boyd.—During the past summer I erected a school-house and residence for the teachers in the principal village of the Hoonyahs, on

Cross Sound, and left Mr. and Mrs. Walter B. Styles, of New York City, in charge of the school. The attendance is from 70 to 80.

Hydah Tribe.—At Jackson, near the southern end of Prince of Wales Island, the chief presented me with a good native house, which I altered over and repaired so that it will answer very well for a school this winter. Next season I hope to build there also. The teacher is Mr. James E. Chapman, of Ohio.

In all these schools the English language is taught. The above five schools in the Alexandria Archipelago, with the small Russian schools at Unalashka and Belkovsky, and the two schools of the Alaska Commercial Company, on the Seal Islands, comprise all the schools in Alaska, leaving a population of fully 20,000 without any educational advantages whatever.

As Alaska is the only section of the United States where governmental or local aid has not been furnished for schools, it is but justice that the friends of education should press Congress for aid.

Then, as American citizens and educators, feeling ashamed that any section of our land should be worse off educationally than when under the control of Russia, having failed to continue the schools that for many years were sustained by the Russian government, we should join in indorsing the request of the National Bureau of Education, which was approved by the honorable Secretary of the Interior and on the 15th of February transmitted to Congress in a special message by the President, asking for an appropriation of \$50,000 for education in Alaska.

At the conclusion of these remarks, Mr. SHELDON offered the following preamble and resolution; which were adopted unanimously:

Whereas the native population of Alaska have alone of all sections of our common country been overlooked in educational provisions; and

Whereas the President has sent to Congress a special message asking for an appropriation of \$50,000 for education in Alaska, to be disbursed through the National Bureau of Education: Therefore,

Resolved, That this Association earnestly requests from the Committees of Education and Labor of the Senate and House of Representatives a favorable consideration of the above request.

The text of the second paper presented, by W. W. Godding, M. D., Superintendent of the Government Hospital for the Insane, is as follows:

A WORD WITH TEACHERS FROM MY STANDPOINT.

GENTLEMEN: You take the mind young and fresh in life's morning and send it, aspiring to become godlike, on its upward flight; I receive it torn and bleeding as it comes fluttering down; is there anything in common between our studies that I should ask you to pause for fifteen minutes in the important labors of your session to listen to me? I doubt it, unless you consider it in the light of a fifteen-minutes recess. How shall I teach the teachers? The germ of insanity lies back of the

education, and I question if the inexorable law in nature which we know as that of "the survival of the fittest" will not, in spite of any or all education, send a considerable per cent. of weak brains to moulder and become moss-grown within asylum walls. This seems but a reasonable deduction from the facts within my own observation; but then I reflect that the sources of life and reason are not in our hands; I know how a little more or a little less of that subtle something we call common sense makes the difference between the wise man and the fool; remembering, too, how a sage physician, by a sudden flash of sunlight thrown from a mirror upon an idiot boy in a darkened room, awakened a gleam of intelligence, disclosing a mind where it had hitherto been supposed to have no existence, I realize what teaching in the hands of a master may accomplish; then, standing among the melancholy ruins where my studies bring me, I think that perhaps a different education would have spared a father's anguish for his only son, could have saved this demented girl

To have been some man's delight,

might have still kept eloquent that drivelling tongue; and so I am here.

From my standpoint the first mistake that we make in the education of the young is that we do not pay sufficient attention to the temperament of the child; we are not all cast in the same mould, even if we do bear the same image. This lethargic youth, whose mental integuments are like the wrappings of a rhinoceros, needs all our goading—a brain fever is hardly possible to such an organization; but this girl, with clear skin, spare neck, intellectual forehead, and speaking eyes, whose lessons are always perfect, whose answer anticipates almost your very thought, whose nervous susceptibility quivers through every fibre if she fancies your reproof of the above-mentioned blockhead is meant for her—it is not study out of school that she requires, but the gymnasium, the rest of long vacations in the summer fields, with nights of repose unbroken by any dreams of school prizes. I know oftentimes your bright scholar is such an oasis in a desert of abounding dulness that there is a strong temptation to the teacher to give him free rein; hence it often occurs that your valedictorian is never heard of afterwards. It is staying power that you want more than brilliancy of mind.

Are we not asking too much of our children? Lay the foundations broad—the broader the better—in physical health, and let the mental growth be natural without forcing. I like the open-air summer schools; even in our climate we should be gainers with more of the outdoor life of the old Greeks; I wish we had again the forum and the grove of Academia; in such schools our children would gain in vigor to more than counterbalance their loss in the exact methods of book teaching. Yes; the advance in all kinds of knowledge is something wonderful. They tell me it is necessary that my son should begin at

the age of seven to fit for college, if he is to enter Harvard; it is true he begins to shed his milk teeth at that time, but he will only see of Harvard the outside of the buildings, for, college or no college, I do not intend to make him the last of my race. You say, and probably truly, that the student now must know more when he enters college than I did when I graduated, and, I may add, than I ever have since. And what do you accomplish by crowding all this accumulation of wisdom into one little brain? Why, you have increased the cerebration, you have intensified the nervous action, but you have not enlarged the cranium, or, if you have, the chances are you have done so at the expense of the physical vigor.

But you say by our education we have moved forward the limit of the individual life. For thirty centuries, and I know not for how much longer, the Psalmist's three score years and ten have been the inexorable horizon of earthly existence; we cannot change this, but we do practically extend it by enlarging its vista; our life keeps quick step to the wonderful march of science; we ride with the storm, we write with the lightning, we paint with the sunbeam; everything is by the instantaneous process. As Poe said of the singer Malibran, "She crowded ages into hours; she left the world at twenty-nine, having existed her thousands of years." I grant you, if this were the final age, nothing could be more desirable; if this was the closing scene and no coming time, no children to inherit our exhausted vitality and to call us anything but blessed.

In a bookstore, the other day, the first volume that met my eye was entitled *A New Form of Nervous Disease*. New form? Why their name is legion. A treatise on the neurotic disorders now makes one of the largest works in a physician's library. It is an age spendthrift alike in brain and in material. Of the heat and power that have been slowly accumulated in the coal measures through the eons of geologic time, which would last with careful consumption for myriad generations, we take 2 per cent. for our purpose, sending the remaining 98 per cent. to be dissipated in warming interstellar space. To the charge of wasteful expenditure, modern science answers that future generations can make available the energy of the tides and keep warm by electricity stored up in reservoirs whose feasibility is even now being demonstrated. They will need it, for our ruthless destruction of the forests will not even leave them the luxury of a wood fire. Yes, power is convertible into everything short of mind, but that I doubt. The "Promethean heat" once exhausted, the vital energy of a race destroyed, science, that tells us so much, knows of no way to restore it, and history points us only to the Huns and the Goths.

The danger to our civilization to-day lies in the direction of nervous exhaustion. I know that those who believe that we are just on the dawn of an intellectual and a material millenium will smile at this, and they will tell you that never in the history of the world was there a higher

manhood, or a time when the individual man was so grandly cared for and had such possibilities as at present. The world, in its successive epochs of civilization, has always shown a culmination of prosperity and an intellectual blossoming just before its decline. Witness the Augustine era and that age of gold of Spanish conquest and renown. This is the age of brain; the marvellous discoveries of science are utilized to intensify our struggle for wealth, for vantage ground, to make all the universe tributary to the little span of our human life. The luxuries of the last generation have become the necessities of this; wealth is only relative, and power never brings content; there is a constant increment of strain, and woe to the brain that goes halt or maimed into that battle.

Do you say this is the mere vagary of an alarmist, the Cassandra-like cry that finds no believers? Ah, but while it was in the infinite decrees that Cassandra should not be believed in that fated city, none the less did the divine afflatus compel her to prophesy, none the less were her forebodings true. Do not understand me to mean that our school education is responsible for all this; no, not even for any considerable part of what we are pleased to call the spirit of the times; but what I do say is that it is the duty of the teacher, instead of drifting with the tide and accepting the tendencies of the age as something inevitable and not to be overcome, to stand up in the dignity of his great office, and of his manhood, and call a halt to this on-rushing madness, and to so instruct the coming generation, the youths who shall take our places, those who "shall be kings hereafter," as to lead them into a "more excellent way." In truth, we are sponsors for the future as well as possessors of the present, and are morally bound to transmit this earth, which is ours to-day, and the vigor of this human life, which for a span we hold, unimpaired to those who in the endless procession shall come after us, as the miller may use the water in the river to turn his wheel and pass it on to another, but has no right to divert the channel or poison the stream.

This brings me to what I have to say on heredity, a subject which concerns you as educators in the broadest sense, not of children alone but of communities. Just now, for the purposes of a certain trial, the newspapers, those blind Samsons in the cause of popular education, have given out that there is no such thing as hereditary disease, that the most eminent experts have so stated. Well, what my brethren, who stand away up at the head of the class did say, trying to be very exact in the use of language, feeling that they were under oath, was, that the tendency to insanity was hereditary, not the disease itself. "The rose by any other name,"—but in common parlance we say, and properly say, hereditary disease; and where a great truth is involved we cannot afford to be misled by any subtleties of exact definition. And here I take occasion to say, in answer to this newspaper dictum, that the hereditary character of insanity is a perfectly well established fact in medical science, and is recognized as such by the profession, and that, acting as the remote cause, hereditary predisposition has probably more to do with the

development of insanity to-day than all the assigned immediate causes put together. "Visiting the iniquities of the fathers upon the children unto the third and fourth generation" is not a mere metaphor of oriental language, it is a fact; it was true three thousand years ago, it is true now. We say this child does not learn because he has no head, but the real trouble is the father was acephalous before him; what a thousand pities such a father ever had a son; the fool-killer was an important agent in the twilight dawn of civilization which we miss at its noonday. From Lyncurgus to Christianity is an immense advance; he cared for the race and forgot the individual; but may we not be in danger of forgetting the race entirely in our care for the individual? Christianity came down from Heaven with its divine mission to the poor and the outcast, and its promise is that "the meek shall inherit the earth," but should we not draw the line at defectives, and stop the intermarriage of the insane?

Impress upon those who look to you for instruction and guidance that, while in their tender care and sympathy for these unfortunates they will do well to imitate the divine compassion, they shall, as they value the integrity of the race, in their pity stop short of marriage. It is time that the laws which govern heredity were taught in schools other than medical. Sins against the physical no less than those involving the moral nature are far reaching in their effects. Ah, what a moral teacher vice becomes when we see its last stages in a hospital! Sometimes I think I will open a school, for though I am but little of a preacher and less of a teacher, my hospital could furnish a Kindergarten with some striking object lessons. Contemplating the misery resulting from hereditary disease alone, looking on these pitiable wrecks where vice and degeneracy, insanity and scrofula, have left their blight on faces more eloquent of the truth of the inheritance of sin and the wages that it brings than any poor words of mine can be, I wish I could take the young men just breaking ground for the planting of their wild oats, and let these silent teachers speak to them! We sow the wind; "ah, what shall the harvest be?"

No, you do not need to remind me how easily, when its passions are involved, the world forgets the lessons of its philosophy, and as a physician I do not expect to recover Love from his blindness, but all the more I recognize how far up in "the glorious procession of saints and martyrs" some souls will hereafter stand whose lives like their devotions have been single, whose silent purpose has been that the inherited taint of their blood should die out from the world with them. And we have seen in them only single men and women, who being so much occupied in doing good had found no time "to marry or be given in marriage," and so left no children to inherit their many virtues. But perhaps the Great Teacher saw those lives otherwise, and had such in mind when he said for our instruction the words that we are inclined to hurry over as we read, "And some have made themselves eunuchs for the kingdom of

heaven's sake." Too much already the race is poisoned with hereditary taint; yes, as we use language, there is such a thing as inherited disease; it is a sin to conceal it; to deny it is a crime.

The fifteen minutes, for which I thank you, are over. This is indeed a weird paper for teachers, as much out of place with its detention as that of the Ancient Mariner to the wedding guest; but if you censure it from the educational standpoint my apology must be that I have erred with the old Athenian teacher who exhibited a drunken man to his children as a temperance lecture.

Dr. JOHN M. GREGORY was next introduced, and read the following paper:

SOME FUNDAMENTAL INQUIRIES CONCERNING THE COMMON SCHOOL STUDIES.

Are the studies of our common schools wisely chosen? Are the seven branches universally taught in our common schools, and which constitute the sole work of many thousands of these, such as an intelligent parent or teacher would select out of the wide range of knowledge for the whole school learning of many millions of our people? In other words, are spelling, reading, writing, arithmetic, geography, and grammar, and occasionally the history of the United States, worthy to fill the entire time of tens of thousands of schools and to absorb the whole school life of a large majority of our children? Questions of greater apparent dignity may come before us, but none of wider practical import. They may seem to some to have a hint of radicalism, or even of revolution in them, but that is not to alarm us. Human civilization has advanced by the abandonment of old errors and superstitions as well as by the discovery of new truths.

It is time to question our educational theories and processes to the bottom. If they are true and right, we want the proofs; if they are false and wrong in any respect or degree, we ought to know it. While the National Congress, oppressed with a new sense of the immense difficulties and dangers which hang over some portions of the Republic, are discussing with a breadth of view never before exhibited projects of national aid to education, the professional educators of the country, the men whose life-long familiarity with educational affairs has made them experts, may well be asked to reëxamine every question which may concern the work to be done or can practically affect results. And, certainly, no question more nearly concerns that work than the work itself, the education to be given. Why ought these seven studies to be taught, these more than others, and especially these in place of all others? Who selected these studies at the outset? And, if wisely chosen then, do they remain the best to-day?

Many and serious complaints have been made, and sometimes in high quarters, against the meagre products of our common school system, and

though much of this complaint is prejudiced and unreasonable, he is a bold man who dares say that the school system is accomplishing all it ought and all we may rightfully expect. What if a mistake lies at the threshold, and the work undertaken is not precisely the work we need to have done? If our 270,000 teachers have been set at the wrong work or the right work in a wrong way, is not a partial failure certain and unavoidable?

No one will claim that it is a matter of indifference what studies shall be taught and learned in the people's schools; and it is as little to be claimed that the extent to which each study shall be carried is a matter of no importance, since any one study may be expanded into the labor of a lifetime.

THE CHARGES AGAINST THE COMMON SCHOOL STUDIES.

It is of the seven studies as they are taught in the common schools of the country district that I wish to speak. In the graded schools of the more populous districts and in the villages and cities, much change has been made for the better; and to these much of my criticism will not apply.

There are three distinct counts in the indictment which may be brought against these studies:

First. They found their way into the schools by accident, and without the intelligent choice of a person competent to select them.

Second. Having gained their admission to the school, they have, from the undue multiplication of text books, monopolized the school life of our children, to the exclusion of other equally important studies.

Third. They give no adequate return for the time spent upon them.

PROOFS OF FIRST CHARGE.

The proof of our first proposition can be furnished by many of our older citizens, who recollect the school of their childhood. Indeed, but little proof is needed, for I have never heard it claimed that these studies were duly selected out of the wide range of human knowledge as embracing things the most important for children to know or as furnishing the mental exercises most suitable for childhood. The most that can be said in their favor is that they have such a degree of utility that, having gained admission, they have kept their place, and may now properly claim to occupy some share of attention in the school work. Certainly no one in the careful and intelligent review will pronounce them the only studies needed by the mass of the people.

But, though not intended for proof, a brief historical statement of the way in which these studies entered the school will allow us to criticise them with more freedom.

READING IN COMMON SCHOOLS.

The earliest common schools, or schools for the common people, had for their chief end instruction in the art of reading, in order to enable

the people to read the Bible and the psalm book. Such were Luther's schools and the parish schools of England. Orthography came with reading as a necessary step in learning to read. These two studies may, therefore, be counted as having had a legitimate introduction, since the schools were organized in their behalf. Against these our first charge does not especially lie. Nor against writing, which came in as an adjunct of reading, with similar practical uses. These three, indeed, are not sciences, but simply literary arts, which give the mastery over written language. As preliminary to all book learning, they are properly in the schools. To read one's lesson is necessary in order to learn it.

Our second and third counts lie against them with full force. Reading and spelling occupy an undue share of time in the common schools, a proportion of time wholly unnecessary to the proper learning of them; and they afford no adequate return in the knowledge or culture given for the time so occupied. The reading lessons are not stopped when the pupil has become able to read (as Luther would have had him) his Bible and hymn-book, nor when he can read (as we would have him) his text books and the newspaper besides. They continue to go on year after year, filling up in the common school fully one-third of the scant time of the teacher and using up a nearly equal proportion of each child's school days. Long series of readers, made up of scraps of literature, follow each other in seemingly endless procession. Spelling keeps its place beside its sister art, and through the years the pupil passes along the columns of selected words vainly attempting to fix in mind the characters of which they are composed by dint of repeating the names of those characters.

And after all this enormous waste of time and money, the number of pupils who learn to peruse with easy and critical intelligence the columns of the next newspaper or the books they have occasion to consult, or, going beyond the mere silent perusal, are able to render the thoughts of the writer into clear articulation, with proper inflections and emphasis, is very small, and, small as it is, is made up chiefly of those who did not learn by reading in school, but from the private perusal of books furnished them at home or through the Sunday schools.

Spelling, the adjunct of reading and writing, shows a still poorer record and result. The common school pupils are few who in later years can spell correctly even the words in common use, or can write, save in scrawls almost illegible.

It is but fair to state that the reading lessons may be and are sometimes made, by intelligent and skilful teachers, the medium of much valuable information and culture. Under such teachers, the reading lesson teaches history, geography, grammar, language, literature, science, morals, and a hundred things besides. The reading class becomes a school in itself, a school of universal knowledge; but it would be unreasonable and unsafe to expect the ordinary common school teacher to

do such work as this. Only the most gifted and those of ample reading and wide scholarship can thus make one branch of learning an open door to all others.

ARITHMETIC IN SCHOOL.

If now, from the studies which relate to the mother tongue, and which we have agreed have their rightful place in the common schools of the people, we pass to those claiming attention as knowledges, the question as to their value and rightfulness of choice would seem more pertinent. Let us take, first, the most universally studied and most appreciated of the remaining studies, arithmetic. This now holds so high a place in the public esteem that many will be surprised to learn that within the memory of living men arithmetic was not allowed to be taught in some common schools of New England. It is true, as we learn from Governor Winthrop's Journal, that "divers free schools were erected, as at Roxbury and at Boston, where they made an order to allow fifty pounds to the master, and an house and thirty pounds to an usher, who should also teach to read and write and *cipher*." Cipherying to the extent of the four rules seemed needful to them, but it was far from being a common study in the common schools till more than a hundred years later. A writer in Barnard's American Journal of Education relates that the officers in some districts allowed evening schools to be established for teaching arithmetic, but refused it admission among the day school studies. At a still later day, and within the memory of many of us, it was studied for the main part only by boys and young men. Many of the girls neglected it entirely or learned only the four simple rules. It made its way to favor from the feeling that it was in some way connected with our business affairs and would help men to make and save money. No one thought of establishing any comparison between this simple art of numbering and other fields of knowledge, either to ascertain its value in the information it gave or in the discipline it afforded, or to determine how much time it should have.

I do not need to pause here to prove how erroneous or exaggerated the ideas of its value now so widely prevalent. These will sufficiently appear in our future discussion.

THE GRAMMAR STUDY.

English grammar came still later into the common school course, and for a long time held only a narrow space in that course as a study for the more mature and advanced pupils. In the outset it was introduced by some occasional teacher, who, having spent a term or two at the academy or at college, had learned Latin grammar or that strange English grammar borrowed almost bodily from the Latin, and who felt ambitious to show his learning, or, perhaps, benevolently concluded to extend it to his older and brighter pupils. From an occasional study, it became, in time, a regular one, and was extended from the few who first attempted its mastery to nearly the whole body of the children.

The idea of its usefulness to teach correct speech was in after years thought of and made a reason for retaining the study in the schools.

GEOGRAPHY CALLED TO ACCOUNT.

Very many are now living who can remember the first introduction of geography into the circle of our common school studies. I recall now a certain small but thick octavo volume, with a single map of the world folded in opposite the title page, which bore the name Morse's Geography. It was occasionally brought to the winter school by the big boys and girls, and when they had exhausted the reading lessons of the American Preceptor, the Columbian Orator, and the old Third Part, they resorted to this geography as a reading book. The poor map was speedily disposed of as an unnecessary incumbrance, and the descriptions of the boundaries, characteristics, productions, &c., of the several countries were read as interesting facts. Occasionally classes would be formed to learn and recite lessons from these mapless geographies, till at length some bookmaker, seeing the chance of introducing a new text book, provided us with geographies fitted up with maps and furnished with innumerable map questions, sufficient to occupy our time for several years. The study became common, and now ranks among the universal requirements of our common schools. Surely no one can claim that the intelligence of school boards, or of wise parents, or of anxious and far seeing teachers selected this from the round of human knowledge and accomplished its introduction on the ground of its superior utility, either as a knowledge or as an exercise of the mind. Entering by accident, it owes its continuance to the enterprise of bookmakers and book publishers. Such is the simple history of the origin of our common school studies.

THE TESTIMONY.

From some articles on "the schools of sixty years ago" in Barnard's American Journal of Education, volume 13, we extract the testimony concerning the early schools of New England given by some well known citizens and educators. Noah Webster writes: "No geography was studied before the publication of Dr. Morse's small books on that subject about the year 1786 or 1787." "Before the Revolution and for some time afterwards, no slates were used in the common schools; all writing and the operations in arithmetic were on paper. The teacher wrote the copies and gave the sums in arithmetic, few or none of the pupils having any books as a guide." "No English grammar was generally taught in common schools when I was young." Dr. Webster says the books commonly used in the schools in those days were the Bible, the Psalter, and the spelling book.

Dr. Heman Humphrey, president of Amherst College, wrote in regard to the common schools in his childhood: "The branches taught were reading, spelling and writing. Grammar was hardly taught at all in

any of them, and that little was confined almost wholly to committing and reciting the rules. Arithmetic was hardly taught at all in the day schools. As a substitute there were some evening schools in most of the districts." Hon. Joseph T. Buckingham wrote in his recollections of the common schools of his time: "Reading, spelling, and a little writing were all that was taught." He says a more enterprising teacher at length came and taught some arithmetic.

A. Bronson Alcott, in an article on the schools of his time, *American Journal of Education*, 1866, says: "Until within a few years no studies have been permitted in the day school but spelling, reading, and writing. Arithmetic was taught by a few instructors one or two evenings in a week. But in spite of a most determined opposition arithmetic is now permitted in the day school, and a few pupils study geography." Much more such testimony might be quoted from the same and other sources; but this is sufficient to confirm my statements as to the origin or introduction of these studies.

It may be claimed that a general recognition and feeling of their importance has been at the bottom of the general use of these studies. Certainly their advocates have used no little eloquence and ingenuity in their attempts to urge upon pupils and parents their great importance and the very valuable results to be secured by these studies. We shall see further on whether these arguments have been founded on facts and have proved good in use.

SECOND COUNT IN THE INDICTMENT.

Our second charge that these studies have monopolized the time is sufficiently evident and is the more aggravated by the large increase of school time thus monopolized. Within the past twenty-five years the average school term of our rural districts has increased from five or six school quarters to as many years. It was, perhaps, no wonder that the mastery of the few reading books and of the more simple parts of arithmetic should have occupied the three or four scattered terms spent in school. But with the increase of wealth, and the multiplication of schools, and the higher public appreciation of education, the school terms increased, till now many children, beginning at five or six years of age, attend both summer and winter sessions five or six years and then during the winter sessions for as many more. The school life has been increased to fully five times its former length, and with this increase has come, not an increase in the number of studies, but in the number of text books. Where in former times we had a single text book, we have now a series, and the series is lengthened out by additions both to its upper and lower ends, until it is ready to cover the entire time of the child's stay at school. Thus, arithmetic is presented first in a little book half filled with pictures of objects to be counted, added, and subtracted. There are added to these primary arithmetics, mental arithmetics, practical arithmetics, grammar school arithmetics, high

school arithmetics, and philosophical arithmetics, furnishing applications of numbers to everything on the earth, in the heavens above, and in the oceans that surround us. Rules are multiplied upon rules, new and cunning processes are invented to secure the same result, until enough is provided to occupy the mind of the average student from childhood to ripe years. Certainly very few of the students ever succeed in completing the books.

In grammar the history is the same: grammar in primer, grammar in twelve mo's, grammar in octavo, grammars of diagrams to teach little children the mysteries of speech, and grammars full of great philological discussions. The apparent aim of the authors has been to meet the child with grammar on his first entry into the school and not to leave him destitute of a grammar to study till his last day in school. What shall we say of the geographies, extending from the picture primer through the long drawn series to the huge high school volume and the great treatise of physical geography? The pupil is required to travel in fancy, and with unaided imagination, over the whole broad earth, and to learn the names and locations of towns, rivers, bays, capes, and islands as endless as they are insignificant. Scarcely any attempt is made, and certainly no attempt is availing, to give any definite notion or any interesting knowledge of the numberless places learned. They are seen as little ink spots, sprinkled over the gaudy colored map, with hard, unpronounceable names, and overloading the memory to such an extent that it breaks down under the burden and empties the whole mass of its acquisitions into the dead sea of oblivion.

If now we go to the school room and ask for the introduction there of some studies which may teach the child the knowledge of himself, of the body he inhabits, of the world he lives in, of the myriad forms of life, of being around him, we are met instantly with the cry "We have more studies already than we can teach." How can the child be expected to learn the place or use of his lungs, his stomach, or his liver till he has finished geography, has learned the last town in Siberia, and all the rivers in Patagonia? Would you have him study the plants from which he derives his daily bread, which beautify his home, which shelter him, which furnish him with the material of his arts, you are met with the unanswerable assertion "Why, he has not yet completed his arithmetic!" Thus these studies have come to stretch their lessons over the school life and to exclude all chance of other studies in the common schools.

THE THIRD CHARGE.

I advance now to the third count in this indictment of the common school studies. It is charged that they give no adequate return for the time that is consumed in their study. Having crept into the schools at nobody's behest, except that of some casual teacher, or perchance of the bookmaker, and having continued to expand till they have filled the expanding school life of our American children, they leave these

children to go forth at last from their schooling with returns so meagre, with knowledge so imperfect, so destitute of power and skill, that one may almost raise the question whether the fruitage of school life repays this expensiveness of cultivation. The charge here made involves three distinct parts:

First. Those studies do not make intelligent men and women. They are not capable of producing intelligence. In this respect they are poverty stricken. Could all the people learn these studies of the common schools and learn nothing more, we should never become an intelligent nation. A study in order to produce intelligence must furnish food for thought; it must offer ideas which stimulate and excite mental inquiry, and it must give knowledge which throws light upon ordinary questions of life. It must hold such vital connection with our every day doings and our every day observations that it shall be called constantly into exercise to explain the phenomena, to solve the problems, and to throw light upon the duties which daily meet us.

ARITHMETIC CHALLENGED.

How many such fruitful and stimulative ideas does the arithmetic give? How often is it made the topic of conversation by friends as they meet to pass a social hour? What mind is set in motion by it and attracted into fields of fruitful thinking? What light does it flash upon our common experience, and how far does it serve to solve the great questions of moral, social, and political duty which each soul encounters in its progress through life?

Indeed, arithmetic, as it is ordinarily studied and taught in country schools, is little more than the guessing of so many riddles. The study of the rules and of the principles is pursued only far enough to enable the pupil to perform the examples under them. He studies the rule as a direction for the performance of a set of sums, not as a law of numbers. And having learned the trick of solution under any given rule, the pupil hastens to cipher out all the other examples under the rule by the same formula. When the book is completed he is simply prepared to turn back and to begin and repeat the process. And when a young man twenty years of age comes to the college or university examination, he asks if it would not be better for him to review arithmetic once more. The examination teaches him that he has learned nothing of its principles, that he has studied it in vain.

GEOGRAPHY NON-PRODUCTIVE.

In geography the case is still worse. In the ordinary methods of instruction it is reduced to a sort of game of "hide and seek" on the maps; crooked ink marks running here and there are learned as rivers; black dots stand for cities; fringed lines represent mountains, and the pupil wastes weary months in learning that one dot with an unpronounceable name lies in this corner of the map, another in

that; that the river lines begin at one point on the map and end at another, and often without the faintest conception of the real nature or location of the country that he studies and with no idea at all of the cities, the seas, the islands, the lakes, the mountains, the harbors, whose location on the map he learns.

Thus the pupil loads his memory with useless lumber. It stirs no thought but that of weariness of the lesson. It brings no inspiration; it throws no light; it answers no question. It is simply an interminable catalogue of names of places never, perhaps, seen or to be seen or heard of, a catalogue which fades from memory in a tithe of the time that it took to learn it.

Who is there among us who in travelling or in trading dares trust for his directions to the geography that he learned in his childhood in the district school?

The great principles of mathematical and physical geography, the construction and use of maps and charts, the movements of our globe and the consequences of these movements in the changing seasons; the physical conformation of the continents and its influences upon climate, productions, and human life; historical and commercial geography, with their living interest; the great cosmical facts full of wonder and full of use—these might indeed stir thought and widen out the intelligence; but these are not and perhaps cannot be included in the study for children of the tender years in which geography is commonly taught.

As in the case of reading, so in geography, some teachers of wide reading, extended travel, and much learning have succeeded in making the geography lesson the vehicle of all kinds of information, historical, commercial, and scientific, and the study in their hands seemed rich and productive, but the riches were furnished from their own stores. It would be in vain to ask such teaching from the average district school teacher.

IS GRAMMAR ANY BETTER?

If you turn to grammar the case is no better. Who ever heard grammar made the subject of conversation, unless it was in a company of teachers? Whom does it stimulate to useful thinking unless it be some pedantic scholar? How far does it enable men to understand the daily phenomena of life or settle wisely the great questions of daily interest? Even in speech, the most useful and the most used of all our arts, how much does grammar contribute to our successful mastery of it? It is notorious that some of the best scholars of the grammar classes still talk in the incorrect phrases of their childhood in spite of their knowledge of the rules of grammar. As taught in our country schools it is not the study of language, but the study of parsing and criticism.

We conclude, then, and the conclusion is as certain as it is sad, that the seven common school studies alone and unaided by supplementary

instruction lying outside of their own scopes and text books are not and cannot be sure sources of public intelligence.

SECOND CHARGE UNDER THE THIRD COUNT.

Our second charge is still more serious. These common school studies do not fit their pupils for the ordinary avocations of life. The farmer's son who has filled his seat in the district school in his district summer and winter for eight or ten years does not carry to the field one item of knowledge which enables him to understand any better the soil that he cultivates or the processes of its cultivation. The mystery by which the brown earth builds from the tiny seed stalk and flower and fruit, is to him as much a mystery as ever. His arithmetic, grammar, and geography, his lessons in reading and writing, have not told him one single law that rules in the vegetable and animal kingdom with which his business is henceforward concerned.

Even his own life is a mystery to him, and his own body an unknown world.

The arts by which he is to live and gain a support for himself and family are utterly foreign to all that he ever saw, or heard of, or studied in the little school-house where he spent so many toilsome months and years. The rules of arithmetic give no facility in comprehending animal life as seen in the faithful domestic beasts which serve us or in the noxious vermin which destroy our gardens and our goods. Grammar gives us no aid in preparing or analyzing our food or in accounting for the state of our health. And the geography of the world without furnishes us with no map of the world within us.

But why follow further this discouraging detail? We speak of what is, and not of what need be. Who does not know that common school knowledge and practical knowledge are things as distinct as grammar and grasshoppers. The popular voice has long since pronounced its verdict upon this matter, and men withdraw their sons and daughters from the schools when they deem it time to teach them the practical arts and duties of life. As Herbert Spencer says:

That which our school courses leave almost entirely out, we thus find to be that which most nearly concerns the business of life. All our industries would cease, were it not for that information which men begin to acquire as they best may after their education is said to be finished. * * * The vital knowledge, that by which we have grown as a nation to what we are, and which now underlies our whole existence, is a knowledge that has got itself taught in nooks and corners, while the ordained agencies for teaching have been mumbling little else but dead formulas.

THIRD CHARGE UNDER THE THIRD COUNT.

But thirdly, and finally, if these studies do not of themselves make intelligent people and do not of themselves fit their students for the avocations of life, perhaps they are useful to prepare for further studies, for higher education. No; here again they fail. The complaint from the whole range of all the higher schools, the colleges, medical and law

schools, polytechnic schools, and universities, is that the common schools do not prepare the student to enter upon the higher courses of instruction, do not indeed work in that direction. Neither the subjects nor the methods of study fit the common school pupil for any advanced course. The ordinary student of arithmetic has found but little to help him in the higher mathematics. Geography helps to little or nothing beyond, and English grammar as taught furnishes scarcely the starting point for higher linguistic study in his own or in other languages.

In the great fields of science, of chemistry, of physics, of natural history, of philosophy, even the alphabet, the simplest notions and definitions, have to be learned by their students without the slightest aid from common schools. One chief difficulty that is felt in teaching these sciences in all the higher institutions is that their students are unacquainted with the simplest language of science. Weeks and even months must be expended in giving to the student of botany, astronomy, &c., the simple elementary notions and names which must be known before he can enter upon the study of the science itself, though these are as easily mastered by the child as the name of grandmother, and are mastered by many children of intelligent parents.

CAN BETTER TEACHING BE EXPECTED?

Now, to all this it may be replied, and doubtless will be by many, that the difficulty is not in the common school studies themselves, but in the methods of teaching them; that when we shall get a better generation of teachers, more thoroughly prepared for their work, whose methods shall be more perfect and whose labors shall be more systematic, this objection will be obviated and better and richer results will be obtained. Such indeed has been the plea for more years than I can remember, and able superintendents and normal teachers have set themselves earnestly and diligently to the task of training up such a body of teachers. But ought not the very difficulty of obtaining this better generation of teachers (the impossibility indeed, that seems, thus far, to have hindered all efforts to train up the requisite number of teachers) to suggest to us the possibility of another conclusion? Let us admit that better teaching brings better results, as is often shown in our graded and city schools. But may it not be that these common studies themselves are so poorly adapted to the child, so unfitted indeed for the common mind and the common circumstances of the most of our children, that fit teachers will rarely be found, or even if found will never attain more than partial success? Must they not succeed, if they succeed at all, by what they add to the studies rather than by what they find in the studies themselves?

Is it not time to seek the solution of the great problem before us in some other direction? Failing to elevate our common schools along this path, may we not be more successful by choosing another? If the teaching of those branches is so commonly defective and scholarship

in them so difficult or so unattainable, may there not be other studies more easily taught and more rich and useful when taught? May we not select a course of studies for our common district schools which shall more nearly meet the natural tastes, capacities, and needs of childhood, which may engage and quicken the native activities of the pupils, and, rousing them to some natural eagerness of pursuit, make their progress and final success to depend less upon the stimulating power and aid of the teacher? And if this new course of studies shall be found also more interesting to teachers, more easily mastered and used by them, will it not also lighten the work of preparation and offer an easier solution to the great scholastic problem of a sufficient force of qualified teachers?

To answer this question of a wiser course of studies for common schools, we must note more fully and carefully the object of all education.

THE TRUE AIM OF EDUCATION.

The great aim of education is, and of right ought to be, the same as the great aim of life. If this aim is simply and solely that of discipline, then the aim of education is discipline. If the aim of life includes the acquisition of knowledge, then education should also include this. And if the great aim of life goes beyond both discipline and knowledge, if it involves the activities of life, its pursuits, its employments, and the whole round of its performance, then education should embrace all these. Both discipline and knowledge are doubtless involved as the necessary conditions of this higher aim, but only as conditions. Discipline has as its end the development of both strength and skill; knowledge has as its object both the nourishment and illumination of our minds. And as our several employments necessarily involve both skill and strength on the one side and intelligence on the other, so they require as a condition of their success a subordinate training and study from which these proceed. But the plans of education for any human being must certainly prove either false or defective which do not include a consideration of the probable employment and destiny. A full education for any human being must take in all the training and knowledge necessary to set him fully equipped upon his career. Our present question relates not to an ideally complete education for one, but to the common education of the many, and for the common duties of life.

NEW STUDIES PROPOSED.

What are the studies then that should be taught in our common schools? I limit this discussion to the common school studies, because in these schools the millions of our countrymen find all the school education they ever receive.

Let it be remembered that I do not propose to banish wholly any one of the seven common school studies. I have admitted that they have

developed a certain measure of utility which entitles them to remain, though in a somewhat changed form and in a much restricted amount.

I only desire to affirm, and with strong emphasis, that these seven studies ought not to hold the exclusive place they now occupy, and that our common schools must remain poor and unsatisfactory till the studies are changed.

But, asking the question wholly anew and with the best light of nineteenth century experience around us,

WHAT OUGHT TO BE TAUGHT IN OUR COMMON SCHOOLS?

I answer, the knowledge of ourselves, physical, mental and moral, and the knowledge of the world in which we live. These are the indispensable knowledges. These the child begins, of necessity, to study in the cradle, and of these he continues to learn more and more till his dying day. They lie at the bottom of our civilization, and are the basis of our arts, our institutions, our wealth, and our well-being. To know the bodies in which we live, their parts and functions, and the laws of healthful living; to understand the mental functions and moral duties on which soundness of mind and right conduct and character depend; to know much of the world, of animal and vegetable life around us, from which our food and raiment, the materials of our arts, and the comforts of our lives come to us; to know the physical features and forces of the world of matter—these are life studies ignorance of which means defeat and death, and the higher knowledge of which means advancing light, increasing power, mastery over ourselves and over our environment. Reading is to be studied as a means of studying these great central studies of man and nature; and all the other common branches are to be made useful and subordinate to these. In plainer words, there should be included among the studies of the people, in the people's schools, physiology, botany, chemistry, zoölogy, physics, geometry, technology, and the elements of political, moral, and social science; not necessarily as sciences, not with text books, not by set lessons and in scientific terms, but as knowledges, lying in nature and open to the eyes and hearts of children, should all these studies have place in the schools, as they have place and uses in life.

The very mention of these studies will be received by many with disapprobation and with the oft-repeated assertion "that children had better be made thorough in the studies already pursued, rather than scatter their time and strength over any additional studies."

IS IT THOROUGHNESS OR THOUGHT?

And just here we meet one of the great popular fallacies which have so long pervaded our schools and help to destroy their influence. The cry has been to be thorough. Teachers have admonished each other, and parents and school officers, leaders and lecturers, have urged thoroughness as the great condition of success in teaching; but it seems

to have escaped the observation of many that thoroughness can never be absolute on this earth; that in regard to education and knowledge thoroughness is a relative term. What would be thorough for a child of 5 would be superficial for a child of 10; and the thoroughness of knowledge required of the teacher of 20 or 30 years of age is practically unattainable by his pupil of 12 and 15. If, then, our children are to be forbidden all study of their bodies, or of the plants and animals with which they have daily to do, till they attain a thorough knowledge of grammar, geography, and arithmetic, then, whatever be the power of the teacher and whatever be the industry of the child, this demand amounts to a prohibition, absolute and impassable, against any advance beyond the old line and law of study and acquirement. It is not thoroughness in the sense of completeness that is needed, and which is probably meant by this popular cry, but clearness of understanding. Let the child know clearly what he knows. Let it be true knowledge as far as it goes, not vague, half knowledge; so we all say.

SCIENCES NOT IN A STRING.

But another popular fallacy lies at the bottom of this demand for thoroughness. It is the supposition that the several sciences constitute a succession of studies varying in degree of difficulty, some of which are adapted to childhood, others to the middle age of youth, while others can be mastered only by the mature mind. Hence it is concluded that one study should be completed by the child before even the elements of other and higher studies are attacked. Nothing could be further from the truth in point of fact. All science begins with simple facts, facts so simple that little children learn them, and all the sciences advance through successive grades and forms of truth till they reach the philosophical stage. Like so many Jacob's ladders, they have their feet in the dust, and their first rounds are so low that the creeping child may reach them. Their sublime summits are lost in the heavens, where only the strongest can soar and the steadiest can stay.

THE CHILD BEGINS THE STUDY OF ALL SCIENCES.

Every child of sound mind and ordinary opportunities will be found, on examination, to have acquired many elementary facts in every branch of human learning. He has begun the study of the whole cyclopædia of science. He distinguishes his ball from his blocks, and knows well enough the contrast between the sphere and the cube. This is the germ of geometry. He easily recognizes the difference between birds and bees or butterflies. He is beginning the study of both entomology and ornithology. He can practically distinguish soap from sugar, salt from vinegar; dreads the fire and delights in the sunshine; and all this is incipient chemistry. He chooses his playthings by colors, knows that unsupported they will fall and break in pieces; sees that force produces motion, and has learned a hundred other facts in physiol-

ogy, physics, and mechanics. He heeds his mother's voice, delights in her smiles, fears her frowns, and shapes his little plans with a cunning that tells that he has already mastered much of the science of mind and morals. Even in arithmetic, geography, and grammar—or rather in numbers, locality, and language—he has made a beginning in nature's own methods, in facts and practice. In short, all nature has been an open book to him; and from his birth he has studied its crowded pages with as much success as delight. Eager to learn, he observes, experiments, inquires, theorizes, tests his theories, compares, classifies, doubts, objects, seeks proofs, learns truths, infers consequences, is full of eagerness to know and name things. His education is going forward without any vacation, till in our foolish anxiety to make him learned in books, and especially in the common branches, we stop his education and send him to school.

THE SAD MISTAKE.

We stop his education, for we have come to believe that until he has acquired his alphabet, learned his a b abs, and spelled his way to reading, he cannot properly begin study. To learn in the proper way he must have a text book. We forget that the volume of nature is God's text book, written in the child's vernacular, the beautiful language of living facts and visible forms. During all this period of his book learning we foolishly count it a mark of idleness for our pupil to chase butterflies, pick flowers, or busy himself with anything else but the primer with which men have supplanted nature's great text book.

Pestalozzi and Fröbel and all the great thinkers and writers on education have protested against this substitution of book study for the study of nature. Rousseau would not allow his ideal pupil Émile to begin book study till fourteen or fifteen years of age, and the Germans require the child to be taught orally from six months to two years before being set to learn to read.

THE BETTER WAY.

If in place of seeking to force the pupil through all the stages of some one study, from its simple primer facts to its high philosophy, we should follow the course of nature, we should teach in the primer or primary grade the primer or primary elements of all knowledge.

As the child advances in each and grows in strength and understanding, we should add successive facts and truths in all these sciences, taking care to emphasize only such as may be of more utility.

When the advancing years require us to fit the child for its chosen pursuits and the widening fields of knowledge compel some selection to be made, then we should choose those studies, and those alone, which promise to have some bearing upon daily duties and the chosen destiny of the pupil.

It is not forgotten that knowledge is fading in character, and that all knowledge which is not made bright by practice and kept bright by use

will speedily pass from memory; and this will be equally true of all sciences of nature and of the common school studies. If the unused geography and arithmetic are soon forgotten, so also will be the unused botany and chemistry. But so, too, skill and strength, the twin products of the much vaunted discipline, also fade and perish if not kept bright by use. Neither knowledge nor skill abides in full vigor if left to lie in idleness.

But which knowledge will be most likely to be kept bright by frequent recall, the common school branches or that which concerns the ever present scenes and powers of nature? Will it be the geography of Asia, Africa, and Europe, or the botany of our door-yards and gardens which will be called into daily use? And what mental judgments will be most frequently repeated in daily life, those of the higher arithmetic and grammar or those which concern our physical condition and the phenomena of life and nature around us?

THE GERMAN SCHOOLS.

Now, lest all of this advocacy of another course of studies for our common schools shall seem unsupported speculation, let us turn for a moment to the common schools of another people among whom the branches of study were selected by wise leaders and under a set of conditions different from those which influenced our own. The German common schools, dating from Luther, may claim to be the oldest in Europe or America. The German and American school systems grew up entirely independent of each other and without communication between their founders. They may be looked upon, therefore, as two distinct answers to the same problem.

The study plan of the German common school, as reported by Dr. Stowe, embraces the following branches: For the youngest pupils, from 6 to 8 years old, (1) oral teaching in the exercise of the powers of observation and experience, including religious instruction and the singing of hymns; (2) elements of reading (after the oral teaching has gone on for six months); (3) writing; (4) elements of numbers.

For the more advanced pupils, 10 to 12 years old, the study plan includes (1) exercises in reading and elocution; (2) exercises in ornamental writing; (3) religious instruction, Bible history; (4) the German language, with grammar and parsing; (5) "real" instruction, or knowledge of nature and the external world, including the first elements of the sciences and the arts of life, geography, and history; (6) arithmetic; (7) geometry, doctrine of magnitude and measure; (8) singing. In the next grade, 12 to 14 years old, there were added to the foregoing (9) knowledge of the world and of mankind, including civil society, agriculture, and the mechanic arts; and (10) elements of drawing. Such are the common school studies of the German states.

My own later observation confirms the statements of Dr. Stowe, with slight modifications. In a visit to the German schools in Saxony, in

1879, I found the study plan included ten branches, and the teaching had the same prevalence of oral and practical work. As Horace Mann said, "The German teachers have found out that each child has five senses, and they teach the senses."

CONCLUSION.

While I hold fast, sternly and steadily, to the main purpose of this paper, to assert the mistake and wrong of the seven common school studies in their common method and measure, as found in the district schools, and to affirm, on the experience of a hundred years and on the credit of many of the ablest educators of this country, the utter impossibility of the attainment of any high and uniform success in our common schools with these seven studies alone, it would be as unjust as it would be untruthful to deny the immense value of the work done by these schools, in spite of the disadvantages of their bad choice of studies. Aided and supplemented by district and Sunday school libraries, by cheap books, by the most extensive, if not also the ablest, newspaper press of the world, by a vigorous and instructive pulpit, by a political system full of popular inspirations and incitements, by a splendid system of colleges, seminaries, and high schools, and by the almost universal tuition of that noblest of all schools, the school of labor, our school system has helped to train up a people second to no other in public and private intelligence, in vigor of practical understanding, in bold and far reaching enterprise, in high conceptions of human rights and duties, and in all the qualities of a vigorous, free, and advancing manhood. All the other agencies of public good would have been inoperative and useless without the ministry of the common schools. They have been the one mighty gear-wheel which has linked the people to all other machinery of moral, intellectual, industrial, and political elevation. If they have disappointed and are still disappointing the reasonable demands and expectations of their wisest and most earnest friends (I care little for the commonly senseless strictures of their few enemies), no one can deny that they have proved the best investment of public and private funds that our land has ever known, and that they are indispensable to the continued existence and prosperity of our Government. It is this indispensableness of these schools which pleads most loudly for the reform of studies which shall put them in completer harmony with the nature and needs of the childhood they instruct and with that great on-going, eternal, and resistless march of nature and history for which they must fit and train their young recruits.

Dr. ORR, of Georgia, submitted the following resolution; which was seconded by Mr. NORTHROP, of Connecticut:

Whereas the National Bureau of Education was established to assist in collecting and to digest and distribute information in aid of the common schools and other institutions and agencies of education; and

Whereas it is believed that a moderate increase of clerical force and of the appro-

priation for collecting statistics is necessary to meet the increased demands on the Bureau, and that its Commissioner should rank as to salary as an equal of the Commissioner of Agriculture or the Commissioner of Indian Affairs: Therefore,

Resolved, That a committee consisting of five members be appointed by this department, whose duty it shall be to inquire into the needs of the Bureau of Education touching these matters, and make such representations and recommendations to Congress, or to the appropriate committees of Congress, as it shall deem important and necessary.

Remarks in favor of the resolution were made by Dr. Orr, of Georgia; Mr. Northrop, of Connecticut; Professor Hall, of Cambridge, and Mr. Shepherd, of Baltimore. The last gentleman proceeded to remark unfavorably upon the paper which had been read by Dr. Gregory and regretted that there was not time to discuss the views presented. Remarks were made by Mr. Smart, Mr. De Wolf, Mr. Richards, and Mr. Shepherd; and Dr. Orr's resolution was then passed unanimously.

The committee of five appointed by the chair consisted of Dr. Orr, chairman, with Messrs. Marble, Smart, Gove, and Newell. To these Messrs. Philbrick, Armstrong, and Scarborough were afterwards added.

General EATON invited the members of the department to visit the Bureau of Education during the evening.

On motion of Mr. DE WOLF, the meeting then adjourned to meet at 2.30 P. M., in order to have a discussion of Dr. Gregory's paper.

The members of the department then proceeded to the Executive Mansion and paid their respects to President Arthur, being introduced by the Commissioner of Education.

FOURTH SESSION—THURSDAY AFTERNOON.

WASHINGTON, *March 23, 1882.*

Mr. Sheldon was chosen to occupy the chair until the arrival of the President pro tempore.

Discussion of the paper of the morning being in order, Dr. GREGORY said that he was surprised that his remarks had given offence; that they merely gave a résumé of some of the most important errors as to studies pursued in the schools; and although he had presented the matter in a different dress it was by no means new, nor did it differ from the ideas expressed commonly in articles published in educational journals.

Mr. DE WOLF indorsed the paper read by Dr. Gregory.

Mr. SHEPHERD had no doubt that the goal in the mind of all present was the same. The most practical education is that which fits men best for all the conditions of life. Are we not the wonder and admiration of the civilized nations of the earth for the character of our development? And yet it is said in the face of all this that the schools are not practical! He concluded by speaking of the great value of the study of the English language.

Mr. BLODGETT, of Illinois, supported the paper which had been read.

Mrs. POLLOCK, of Washington, spoke in favor of the introduction of the Kindergarten.

Mr. BLODGETT thought that the department should pass some resolution regarding the service to education rendered by Mr. Henkle. Mr. GOVE, of Colorado, wished the recent death of Mr. White to be similarly noticed. Thereupon General EATON moved that a committee consisting of Messrs. De Wolf, Blodgett, and Gove draw up suitable resolutions in regard to the death of these prominent educators; which was adopted.

The following paper was received from W. T. HARRIS, LL. D., and on motion of Mr. MARBLE it was accepted as a part of these proceedings.

HOW TO IMPROVE THE QUALIFICATIONS OF TEACHERS.

The superintendent of schools finds it his most important duty to create and foster an enlightened public opinion in regard to the province and functions of the system of education under his charge.

Where the people furnish the material means to support the school and choose teachers and superintendents to direct and manage it, public opinion marks out the limit of development, for the teachers and superintendent must represent the will of the people. They cannot successfully establish measures not approved by the community.

On the other hand, if the ideal standard of education is high in any community, means will be found and representatives chosen to realize that ideal.

On the conviction of the people, therefore, the perfection of the school system depends, and no structure has any stability if its educational results are too complicated or too subtle for popular recognition.

From this we deduce our statement regarding the most important duty of the superintendent. The superintendent is a specialist in matters of education. The community has chosen him and set him over a special department, namely, the direction of its schools. He has the best opportunity to learn what the school ought to do for the children of the people, and he can discover the best measures for its accomplishment. Having, as a specialist, to form an ideal of excellence in his department, he has a twofold duty remaining to perform: he must realize this ideal in the administration of the details of his system and he must educate popular opinion in his community to appreciate and support that ideal.

The superintendent cannot consider too carefully the last item of his list of duties. He must make his educational ideal valid in and through the conviction of the people, and never allow himself to suppose that he has discharged his duties when he has discovered the educational needs of the people and organized the details of an efficient system to supply those needs.

It is unfortunate for the cause of education that so many excellent superintendents have neglected this third duty, and have even rejected its requirements as unworthy of attention from men with a high sense of honor. They have seen the political demagogue and his base flattery

of the passions of the multitude, corrupting them for the sake of perpetuating his own selfish power. Any appeal to the people, any means used to influence the people directly, seems to be objectionable on the score of demagoguery.

Holding this view, our able superintendent devotes himself to discovering educational wants and perfecting his work of instruction and discipline, and he haughtily demands the support of the community and expects their confidence as a matter of right and justice due to himself. If the people take a different view and are dissatisfied with his exercise of power, and in the end overturn his establishment, he assumes the air of a martyr and finds his consolation in enumerating the petty circumstances of his persecution by low minded enemies while he was pursuing the strict and narrow path of duty. The people who removed him simply call him unpractical, and relate a few instances of his stubbornness in carrying out his abstract regulations where they conflicted with the customs and usages of the community. He insisted on applying his abstract rule of industry for all the children, in cases where study at home ruined the eyesight of Mr. A's son, or regularity and punctuality were insisted on so strenuously that Mr. B's daughters would go to school when not fully recovered from a fever, and the consequence is the death of one of them; or, in order to preserve the furniture of the new school-house from the wear incident to use by children not seated for study as in regular school hours, a regulation requires all pupils to remain in the open air until the bell rings at five minutes before nine o'clock, when all must form lines in the school yard and march into the building in military order. This being rigidly adhered to, a very inclement morning has caused much suffering and some cases of severe illness.

These are serious evidence of impracticability, "of a lack of common sense," as the people will tell you. But even when the teacher or superintendent is very discreet in all matters of administration of the schools, if the parents feel themselves treated without respect and due consideration they will misinterpret the teacher's motives in a multitude of instances and accept an unfair account of much that he has done, and thus come to view him as lacking disinterested regard for duty or else as lacking common sense. "Common sense" differs from the other kind of sense in taking into consideration all the circumstances of the thing, all that has interest in *common* with the thing; while the lack of common sense shows itself in the tendency to view its own subject of interest out of its proper relations to the rest of the world; it gets so close to its object that it is exaggerated by the perspective, and the great world is hidden from view by the mole hill in the foreground.

The educator who lays all this stress on his first and second duties and neglects the third one is like the architect who draws an excellent plan on paper and then builds a beautiful structure with hewn stone and the best of mortar, but who has neglected the preparation of a proper foundation. After a short time cracks begin to appear in the walls,

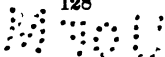
the structure becomes dangerous and must be pulled down. In order to complete our comparison we must imagine our architect extolling the merits of his plans and the convenience of his building for human uses; it was a thoroughly rational contrivance to shelter man from the elements and give him light, heat, and ventilation, and room for all his needs. What a calamity, therefore, that it must now be pulled down. That he should not recognize the necessity of planning and building with reference to the foundation as well as with reference to the human uses for which the building is erected, would totally unfit him for the business of architect and builder. But there are many educators who cannot see that the superintendent should look constantly to this foundation of the institution under his charge, and build all his improvements on the foundation of the convictions of the people, and take care to buttress all the walls upon distinct and explicit recognition on the part of both parents and pupils. In our country and time no system of managing any institution will achieve a permanent success unless it is based upon and interprets correctly the instincts and convictions of the people and unless it is made to *seem* to the people what it is in reality.

"Three things govern the world," says Goethe: "love, wisdom, and appearance." Love is correct sentiment, wisdom is correct insight, appearance is the seeming of being; and, whether false or true, seeming will furnish the foundation for practical action. False appearance will lead to lame, impotent deeds; true appearance alone will furnish a basis for positive, rational deeds. Love and wisdom will not diffuse themselves for the blessing of mankind unless their mode and manner of appearance is looked after and unless the appearance of their recipients or objects is understood.

It seems strange, at first, that the wisest literary men of our century should lay so much stress on appearance (or mere seeming; the German word is *Schein*). But Goethe had looked into the political changes which announced their advent in our own Revolution and subsequently in the French revolution.

After the battle of Valmy, in which he saw with his own eyes the first defeat of allied monarchical power by insurgent French democracy, he said to the officers of the defeated German corps with whom he had approached the position of the enemy that morning: "Gentlemen, to-day you have beheld the beginning of a new epoch in the world's history." His thought was this: Henceforth it shall not be sufficient for the governing power to rule rationally and make up its accounts by its own standards. Henceforth in the history of this world it shall become more and more necessary to take into account the convictions and desires of even the lowest stratum of the people.

The lower the stratum of the people, the less power have they to penetrate the disguise of appearance and see the true reality. This makes it all the more necessary to see that the appearance of what is true and good is not mistaken by humanity and in its place the false and



evil adopted because it has put on the guise of the true and good and masquerades under its appearance. We must do right and also make it seem to be the right. He who educates the people to know the right by its appearance does as good a service to the world as he who merely discovers the right or who merely organizes it into an institution.

In discussing any topic relating to the duties of a superintendent of schools, therefore, it is necessary to keep in mind this threefold nature of his work. By its light we shall find the solution of many difficult problems that beset the administration of the affairs of education.

I have been led to make this general disquisition on the scope of the work of the director of educational interests because the question assigned to me for discussion before your honored association on this occasion is one that cannot be discussed profitably without a just appreciation of the third principle in the threefold duty of the superintendent.

I therefore announce as the general form of my answer to the question "How can we improve the qualifications of teachers?" bring them to feel by all legitimate means and influences the importance of making themselves strong in their community. They must teach well, and this includes good instruction and good discipline. They must conduct the school well, and this includes a proper reference of their work to the regulations of superintendents and school directors and the most important matter of educating the community at large into a critical knowledge of the quality of a good school.

At first thought the teacher would be supposed to have enough to do if he attended simply to matters of discipline and instruction. In order to reach and largely influence parents it would be thought necessary to visit the parents often, and that this would consume so much time and energy on the part of the teacher as to seriously weaken his fund of strength left for the work of instruction and discipline. But, in fact, it is not expected of the teacher that he shall make a system of visiting parents; such a course would be likely to diminish his influence. It is through the children themselves that the parents are best reached and influenced. The teacher who is careless of the opinion of parents and who feels no direct responsibility to them, governs his school in a very different manner from that of him who keeps the sense of the community constantly before him. Every teacher comes into relations with the parents of his pupils oftenest, as far as personal interviews go, through the failures of his pupils. Irregularity of attendance, want of punctuality, idleness, backwardness in scholarship, and improper behavior are occasions for consultation with the parent. The polite request of the teacher, made in a manner indicating interest in the pupil's welfare from the point of view which the parent ought to take and does take, will nearly always secure the prompt attention of the parent and his cordial coöperation. The coöperation of the parent removes most of the difficulty in managing pupils.

A comparatively small number of personal interviews suffices to estab-

lish the reputation of the teacher for good or bad among the parents of his district. One case of arbitrary exercise of authority or one case of ungoverned temper on the part of the teacher will be remembered by all who hear of it, and all will hear of it. Each parent takes to himself what is done to any one parent, just as each pupil trembles at the punishment inflicted on any one pupil, and perhaps the good pupils suffer more than the bad ones through imagining themselves to be in like circumstances with the culprit.

A sense of responsibility to the good opinion and moral support of the parents in the community makes itself felt on slight occasions, and soon gets recognized by all and gives rise to mutual confidence. The influence upon the pupil of a knowledge of a mutual respect between the teacher and his parents is exceedingly beneficial.

Whatever is done at school is reported at home, though not directly, by the children of each family. The parents form an opinion of the teacher through the fragmentary reports of their children, and that opinion reacts directly on the behavior of the pupils. The experienced teacher, who has long been in the habit of looking beyond his pupils to the families they represent, has learned how to mould opinion through the impressions he leaves on the minds of his pupils.

The superintendent can do no greater service for his teachers than to develop in them this habit of considering all their instruction and discipline as having a direct relation to the pupils, and through them to the parents, and again a still further reaction upon the pupils, which affects them permanently. The wise teacher will not waste his efforts in an impulse on his pupils that will be neutralized at once by the parents. He will find a way of educating the parents by a series of preparatory steps.

These matters of direct relation of the teacher towards parents are very important, but they depend more on the impulse of the teacher than on the efforts of the superintendent.

There are, however, many devices of school management entirely within the control of the superintendent which may be used for the improvement of the quality of teachers' work. I will mention, first, the suspension of pupils. This may happen for irregularity of attendance or for disobedience; suspension is not expulsion. The teacher should not exercise the power of expulsion. Suspension means simply that the pupil has in some way violated the rules of the school in a serious manner, and that the case is referred to the superintendent, who will restore the pupil upon the application of the parent. This brings about a meeting between the parent and superintendent, who must always be conciliatory toward the parent. It is the great mistake of some superintendents that they assume a browbeating air towards parents of pupils who have been suspended. If the parent is punished in that manner the pupil's cause has become the parent's cause, and the effect is lost on the pupil.

The parent must be free to complain to the superintendent in regard to the conduct of the teacher, but the superintendent will hold his own counsel. In this way sometimes the fact will be revealed that the parent has lost confidence in the justice or ability of the teacher. In that case the child cannot be expected to profit by the instruction he will receive in that school, but will be a source of insubordination and a destroyer of sympathetic relations between the teacher and other pupils. The superintendent will explain this condition of things and urge strongly the transfer of the pupil to some other school in the neighborhood. If the parent insists on retaining the pupil in the same school he will then see the necessity of correcting his alienation towards the teacher and will seek a personal interview. Under most circumstances transfer of the pupil to another school is the best course. Transferred pupils come among strangers both as to pupils and as to teachers, and they have the best of opportunities to begin a new career. The parent is also far more apt to frown on a repetition of an offence by his child in the new school. He now suspects that the original difficulty was the fault of his own child instead of the fault of the former teacher. The child gets no sympathy at home for his misbehavior and finds obedience the easiest course at school. But the recurrence of trouble at school on the part of the pupil after a case of suspension and restoration to the same school is more likely to be accounted for by the parent as a case of grudge on the part of the teacher.

It is a common practice in our cities to have rigid district lines separating one school from another. It is thought that pupils should never be transferred from one district to another. This habit of preserving strict lines costs a fearful price. The collisions between the teachers and the pupils and the parents ripen into feuds and continue to accumulate, with interest, from year to year, while by the plan of transfer they are neutralized at their inception and a strong attachment arises for each school on the part of its patrons.

There is no better preventive or remedy for the evil of irritability on the part of the teacher than this device of transfer in case of severe complaint on the part of parents. The teacher is made aware of the effects of his or her irritability, and at the same time of responsibility to the community. The peculiarity of the teacher's vocation—being obliged to deal with immature minds and especially with undeveloped wills subject to fits of caprice and irrationality—the very nature of the teacher's vocation tends to produce dogmatism and irritability. The superintendent must, therefore, organize all his means so as to counteract this tendency and so as to protect the teacher against the effects of his own vocation.

Of course it will be conceded that professional training in a good normal school is the best preparation for the new teacher. I have made repeated examinations of the comparative merits of normal school graduates and other teachers. The result has proved to be in favor of the

normal schools by almost 50 per cent. in quality of work. The criterion has been the estimate reported by the principal of the school and confirmed by the superintendent. Promotion for merit has been doubly in favor of the normal graduates. The average teacher stops growing within a short period after achieving fair success, three to five years being the ordinary limit fixed. The teacher educated at a normal school is more likely to continue growing throughout the entire career.

The best device for the initiation of new teachers, whether from the normal school or elsewhere, is what is known in cities as "substituting." The new teacher is sent to fill temporary vacancies as they occur. If a partial failure is made and demoralization takes place on the part of the pupils, the evil is soon remedied by the return of the regular teacher. Meanwhile the teacher goes to fill some other vacancy with a store of valuable experience acquired. It is very difficult for a young teacher to recover control of a school room after it has been lost by the mistakes of inexperience. The plan of sending out such inexperienced teachers as substitutes not only makes them successful in a far less time, but it positively saves many from complete discouragement and ultimate failure. I have known many teachers of long experience, but wretched failures after all this experience, who have become good teachers after being employed a few weeks as substitutes. This practice of sending substitutes to fill vacancies is made more effective in improving the qualifications of teachers by the organization of schools in groups and placing them under supervisory principals. The supervisory principal can manage a system with twenty to thirty subordinate teachers. His work differs from the superintendent's in the fact that he is required to hear at least two regular recitations daily, a circumstance which keeps his supervision at the point of view of the teacher and makes it to differ widely from the supervision of the superintendent.

The links of supervision when developed fully in a large city are three in number and very different in kind. The general superintendent is best qualified to detect one-sided tendencies in instruction and discipline and to take note of the trend of public opinion, give advice to the school board, &c.

The assistant superintendents study details of management more closely and give more stimulus to the application of special methods and the correction of defects in practice. The supervising principal can give daily support to a teacher that is failing in discipline or instruction, and can conduct classes in the presence of the teacher and demonstrate the best methods of instruction, as well as prevent too harsh discipline by having the flagrant cases sent up to him for correction. These flagrant cases he can usually reform by keeping a record of them and having the same pupil bring up a daily record of his behavior from his teacher until he succeeds in attaining a perfect record for several days in succession.

There is still another very important means of improving the quality

of instruction, by introducing into the course of study a certain amount of work to be done orally. The pupil is to have no text book and to have no previous preparation. The teacher must make elaborate preparation and furnish the pupil information, and at the same time, by conversation, connect this new material with related objects that have already come into the child's experience. The oral lessons should not be given on work that the child can already master by his own study, such as the disciplinary studies, reading, arithmetic, geography, and grammar; but they should relate to the sciences of nature and to civil history, nature, and man. Inasmuch as the preparation by the teacher must be elaborate, there should be not more than two of these oral lessons a week. It has been a great mistake to bring in these oral lessons every day. The teacher has been unable to meet the strain on her energies and has been obliged to come to the lessons unprepared. With one long lesson a week in natural science and one in history, the teacher makes weekly preparation and gradually becomes well informed in all departments of natural science and civil history. A teacher continually growing in knowledge of the world will continually improve as a teacher.

This oral work stands in sharp contrast to the regular text book work. Its results, however, continue to reappear in the greater interest which the teacher infuses into the recitation from the text book. Her ability to cross-question and to bring out into clearness all phases of the subject continues to develop. There is and must be a periodical recurrence of a demand on the part of the public for this introduction of lessons in natural science and history into the course of study. These are information studies, contrasted with reading, writing, arithmetic, grammar, and geography as discipline studies, and their methods should be very different. Then they will be mutually helpful. All text book instruction tends to degenerate into parrot-like repetition of words without investigation of the meaning. All oral instruction tends to degenerate into a pouring-in process for the pupil, giving him amusement and saving the hard work for the teacher alone. The school should not give up its information studies because the people cease to clamor for them, nor introduce them at the expense of discipline studies when extremists demand it. The superintendents must be conservative in action and conservative likewise in reaction. For my closing sentence, I return to my main thesis: they must chiefly exert their influence to make the teacher strong in the community.

Messrs. SMART and HOUCK followed in discussion; and Mr. RICHARDS, of Washington, said that the essential in schools is not method but matter; that nine-tenths of the time of the children is spent in memorizing that which never results in anything.

Mr. NORTROP spoke in favor of the schools of the rural districts, and said that in nine cases out of ten country boys will succeed best.

Mr. SHELDON remembered that Dr. Gregory made an address which

he heard in Michigan twenty-five years ago on practical education, and he discussed the paper under consideration at some length.'

Mr. FLETCHER, of Maine, and Mr. NORTHEOP made pertinent remarks.

Mr. BLODGETT reported the following resolutions; which were adopted:

Resolved, That in the death of W. D. Henkle, one of the founders of this association, it has lost one of its most earnest and constant laborers, and the cause of education will miss his earnest advocacy of sound and comprehensive methods with his voice and with his pen.

Resolved, That in the recent death of S. H. White, long the efficient principal of the Peoria Normal School and an earnest promoter of the interests of this association, we have lost a fellow-worker whose zeal was untiring, whose judgment was sound, whose friendship was warm and true. He has left valuable contributions in the important field of educational journalism.

The Department then adjourned sine die.

APPENDIX.

REPORT OF THE COMMISSION ON SCHOOL BUILDINGS IN THE DISTRICT OF COLUMBIA.

WASHINGTON, D. C., *March 15, 1882.*

The commission appointed by the resolution of the House of Representatives, dated February 20, 1882, * * * for the purpose of investigating the public school buildings of the District of Columbia, &c., has the honor to submit the following report:

Having duly organized, the commission addressed letters of inquiry to the Commissioners of the District, the board of trustees of the public schools, the superintendents of the public schools, and the health officer of the District, referring to the resolution and requesting information bearing on the matters referred to therein. All of these communications received prompt replies, and the commission takes great pleasure in acknowledging the uniform courtesy with which it has been treated by all parties concerned in the inquiry, and their evident desire to furnish all the information possible relating to its object.

The brief space of time allowed for the preparation of this report has not permitted of so complete an investigation into the character of the buildings, &c., as would have been desirable; and by reason of pressure of other official duties the members of the commission have been unable to devote as much of their time to personal examination of the various schools as they would have wished. Nevertheless, they have been able to visit in person a number of the schools, including specimens of the best and of the worst of both the owned and the rented buildings.

They have also been fortunate in obtaining through the courtesy of the National Board of Health the assistance of Dr. Charles Smart, United States Army, who has made for them a number of examinations of ventilation, including careful air analyses, in buildings selected for that purpose as types. Mr. F. H. Cobb, an engineer of the Capitol grounds, has, at the request of the commission, made a careful examination of all the rented buildings in Washington and Georgetown, with reference to their capacity, sanitary condition, security from fire, amount of rent paid, &c., and this information, together with that furnished by Dr. Smart, and some of the results of the personal observations of the commission, are embodied in a report upon each school building owned or rented.

* * * * *

After having carefully considered the data, * * * and after an examination of the plans of the various buildings furnished from the office of the inspector of buildings for the District, and after having had personal conferences with the Commissioners of the District, the inspector of buildings, the building committee of the board of trustees, and the superintendents of public schools, the commission have come to the following conclusions:

I. The amount appropriated for the construction of new buildings in the District during the last three years has not been sufficient to do

more than meet the demand for accommodation due to the annual increase of pupils during the same time. This will appear from the following table, which shows the annual increase in attendance of pupils in the public schools during the last six years:

Year.	Average enrollment.	Increase.
1875	14, 417	
1876	15, 646	1, 229
1877	17, 112	1, 466
1878	18, 959	1, 847
1879	20, 389	1, 430
1880	21, 600	1, 211
1881	22, 061	461
Total increase for six years		7, 644
Average annual increase for six years		1, 274

The amount of additional accommodation provided during the last three years by the erection of new buildings has been about 1,320 pupils annually. It is believed that this statement sufficiently accounts for the fact that there has been little or no diminution in the number of rented buildings, notwithstanding the number of new buildings which have been constructed.

The following table shows the total number of school-rooms owned and rented in the District at the present time, which gives an average of 55 pupils per room:

	White.	Colored.	Total.
Owned	180	109	289
Rented	84	25	109
Total	264	134	398

The large school buildings that have been erected in the District during the last three years have received careful examination. The general plan of all these buildings is considered fairly satisfactory, and they are superior to some and equal to the average of school buildings in other large cities of this country. They have been as cheaply built as is consistent with the purpose for which they were designed, no money having been used for architectural effect or ornament of any kind. They include the Peabody, Henry, and Force school buildings and the one at the corner of Tenth and U streets. The plans of the Peabody and Henry buildings were selected by prize competition.

The principal defect, from a sanitary point of view, in all these buildings is in regard to the fresh air supply, which is entirely insufficient. The method adopted for this purpose is to admit the air through a perforated plate placed beneath the sills of four windows in each room. Having passed through this plate the air is supposed to pass downwards through a narrow slit in or behind the wall, and to enter the room at a level with the floor, and then pass up through a steam radiator which is placed against the window. The sum of the area of the clear opening in the external plate of each window is from 22 to 25 square inches, so that the area of clear opening for the supply of pure air to the room is

from 88 to 100 square inches, giving an average of about two-thirds of one square foot. When it is remembered that this is intended to supply fresh air for 60 children, each of whom should have as a minimum 30 cubic-feet of air per minute, it will be seen that it is simply impossible to obtain such a supply through the openings provided, which in fact will hardly furnish 5 cubic feet per minute per pupil. In most of the rooms at the time of the examination these fresh air openings were found to be entirely closed and even when open, in a majority of cases, very little air was entering through them. It would appear that they are kept closed in part to prevent the freezing of the condensed water in the radiators and in part to avoid draughts upon the children sitting near them. The greatest part of the supply of air for the school rooms in cold weather comes directly through the brick and plaster walls of the rooms, especially on the windward side of the building, and from the large central halls, the doors and transoms into which from the several rooms are usually kept open. Examinations showed that in most cases a strong current inwards existed in the lower part of the open doorways.

In the Tenth and U streets building the foul air flues in the external walls are so arranged that at times the two large aspirating ducts on the opposite wall pull against them to such an effect that there is a down draught through the external foul air flues into the room. The large central aspirating shafts in these four buildings appear in the main to work well. Each school-room has, opening into these shafts, registers, one-half near the ceiling and the other near the floor, amounting in all to four square feet of clear opening. The velocity of air at these openings was found to vary from 80 to 200 feet per minute. The maximum would give 800 feet per minute removed as the work of these shafts. The amount which should be removed from the room to give 30 cubic feet of air per minute to each child would be 1,800 cubic feet per minute, or more than double the work actually effected by the aspirating shafts. The heating apparatus in these buildings is altogether insufficient to heat during cold weather the amount of air supply which should be furnished. To effect this, both the amount of radiating surface and the size of the supply pipes would need to be largely increased.

There is no provision in any buildings for diminishing the temperature of the incoming air without totally cutting off the supply of heat, and when the rooms become overheated, as appears to be not unfrequently the case, the only method of cooling is to shut off the heat and open the windows, thus creating draughts. In the Peabody and Henry buildings, the building on the corner of Tenth and U streets, and in the Curtis building, a simple bell trap in the floor of the basement is the only protection against the entrance of sewer gas into the buildings. These bell traps are entirely unreliable for this purpose, and as a matter of fact in the Henry and Curtis buildings, and also to a slight extent in the Peabody building, the gases from the sewers were found to be passing through this trap into the basement. As the air of these basements communicates freely with the upper part of the building, and forms, as has been pointed out above, one of the main sources of supply for the school rooms, the great danger from this source can be readily understood.

II. Very few of the rented buildings have any special provision for ventilation. The great majority of them are heated by cast iron stoves standing in the room, and have no special arrangements for either fresh air supply or the removal of foul air. It is believed that in the majority

of these buildings great improvement in the ventilation might be effected by simple means and at comparatively small expense by employing ventilating stoves, which shall warm the fresh air to be admitted, and by the insertion, at suitable points, of flues for the escape of foul air.

As regards the rents of these buildings, the commission would refer to the recommendation of Mr. Cobb and of the inspector of buildings.

* * * * *

It must be remembered, however, first, that the assessed value is considerably beneath the actual value, and, second, that while the rent paid for some of the buildings is undoubtedly exorbitant, it is probable that these are the only buildings in the vicinity which can be procured for the purpose.

The locations for new buildings to be erected should be selected with a view to diminishing the amount paid for rental as much as possible.

III. In view of the fact that the construction of these buildings is so far advanced toward completion, and after an examination of their plans and of the work so far as completed, the only suggestions which it appears to be necessary to make at this time with regard to them are: (1) That in view of the recent burning of the Jefferson school building, and that it is alleged that this was due to the fact that the horizontal ventilating flues were combustible, it is advised that all the ventilating flues in the new buildings should be made fireproof. (2) That care should be taken by means of properly adjusted valves to secure a free supply of fresh air at all times, whether the heating apparatus be in operation or not, and also the possibility of so mixing cold with the warm fresh air as to secure the admission of a free supply of air at any temperature desired. The system of heating and ventilation by means of indirect radiation in these buildings is, in the opinion of the commission, the only one which will give satisfactory results in large buildings of this class.

Into the details of the sizes of flues, &c., to secure the necessary amount of air supply and removal, the commission has not had time to enter.

IV. The commission is of the opinion that the control of and responsibility for the erection, repairs, and care of public school buildings and property pertaining thereto should be vested in the school board by the Commissioners of the District. It is advised, however, that no new building should be erected, or any important alterations in existing buildings made, until the plans and sites selected for such new buildings, or the proposed alterations, shall have been approved by a board of experts representing the best and most recent knowledge in sanitary science, in pedagogy, and in architecture. In view of the fact that one-half of the expense of these schools is borne by the General Government it seems only proper that it should, through its own officers, exercise the controlling power of approval with regard to the erection of new buildings or important changes in those already existing. Such an important matter as the arrangement of a large school building should not be left to the discretion of a body of men who have no special familiarity with the approved principles of school management, sanitary science, or architecture.

The simplest and most satisfactory way of obtaining such a board of experts would be to have them appointed by the President, who would probably have no difficulty in selecting suitable persons from among the various officers in the different departments of the government who are on duty in Washington.

V. It is the opinion of the commission that the amounts heretofore

allowed for repairs in the school buildings have been economically used, but that they have been insufficient to meet the current wants. The commission find, however, that under the present system there is no possibility of ascertaining what each individual building has cost in the way of repairs, and it is considered that this is a defect which should be remedied. An account should be kept with each building, not only for its original cost of construction, but for the subsequent cost of repairs, heating, lighting, &c., for purposes of comparison, and to ascertain the relative merits of different plans of construction, &c.

VI. In all buildings which have water closets within the buildings it is desirable that the present plumbing regulations of the District of Columbia should be enforced, and this should apply not only to those in process of construction or hereafter to be erected, but also to those already occupied. It is the opinion of the commission that every school building in the District should be carefully inspected at least once a year with reference to its ventilation, plumbing, and general sanitary condition, by an officer of the health department, and the result of such inspection be reported to the board of trustees of public schools through the Commissioners of the District.

VII. Only a portion of the buildings owned by the District, and none of the rented buildings, are fireproof. As regards the majority of the rented buildings, however, the danger in this respect is comparatively small, since they are only one or two stories in height, and the stories are so low that, in case of fire, escape could probably be readily effected by the windows.

* * * * *

VIII. The commission has carefully considered the existing wants of the District for additional school accommodation.

Looking at this side of the question only, it would appear that there is at the present time great demand for additional school buildings. On the other hand, the commission fully recognize the fact that there are great and urgent demands upon the revenue of the District for other purposes, and more especially for drainage, sewerage, and for putting the streets into a proper condition, and also that the rate of taxation upon the property owners in the District should not be materially if at all increased. It is because this last point has been kept in view that the commission has refrained from commenting in detail upon the defects which are found in the existing school buildings, even in the best, or from urging the erection of such buildings as would be considered, in the light of the combined requirements of modern sanitary and pedagogical science, as model schools, since to secure the amount of light and fresh air which should be furnished in such a building necessitates not only a certain increase in cost of construction over that which has been heretofore expended upon school buildings in the District, but also additional cost for their maintenance, more especially as regards heating, since in cold weather the fresh air to be supplied must be warmed, and if the proper amount is supplied the cost for fuel must be increased to correspond. Taking all these things into consideration, it is the opinion of the commission that for the next three or four years at least the sum of \$100,000 per annum should be expended in the construction of new buildings upon plans to be approved by a board of experts, as above suggested, and that, setting all other considerations aside, it will be much more economical to make this expenditure than to pay the rents of the structures which these new buildings would replace.

In the plans of buildings to be hereafter erected, the commission consider that the following points should be insisted on, concurring

with regard to them with the report of a special committee of award upon plans for public schools, as reported in the Sanitary Engineer for March 1, 1880, with certain modifications relating more especially to the conditions in the District:

1. All sides of the building shall be freely exposed to light and air, for which purpose they shall be not less than sixty feet distant from any opposite building.

2. Not more than three of the floors, better only two, shall be occupied for classrooms.

3. In each classroom not less than 15 square feet of floor area shall be allotted to each pupil.

4. In each classroom the window space should not be less than one-fourth of the floor space, and the distance of the desk most remote from the window should not be more than one and one-half times the height of the top of the window from the floor.

5. The height of the classroom should never exceed fourteen feet.

6. The provisions for ventilation should be such as to provide for each person in a classroom not less than thirty cubic feet of fresh air per minute, which amount must be introduced and thoroughly distributed without creating unpleasant draughts or causing any two parts of the room to differ in temperature more than 2° Fahrenheit, or the maximum temperature to exceed 70° Fahrenheit. The velocity of the incoming air should not exceed 2 feet per second at any point where it is liable to strike on the person.

7. The heating of the fresh air should be effected by indirect radiation.

8. All closets for containing clothing and wraps should be thoroughly ventilated.

9. Water closet accommodation for the pupils should be provided on each floor.

10. The building should not occupy more than half the lot.

All of which is respectfully submitted.

JOHN S. BILLINGS,
Surgeon, United States Army.

JOHN EATON,
United States Commissioner of Education.

EDWARD CLARK,
Architect United States Capitol.

CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 3-1883.

**PROCEEDINGS OF THE DEPARTMENT OF SUPERINTENDENCE OF THE
NATIONAL EDUCATIONAL ASSOCIATION AT ITS MEETING
AT WASHINGTON, FEBRUARY 20-22, 1883.**

**WASHINGTON:
GOVERNMENT PRINTING OFFICE.**

1883.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., May 18, 1883.

SIR: The accompanying papers contain the records of the proceedings of the recent meeting of the Department of Superintendence of the National Educational Association, together with the addresses presented during the several sessions.

Their publication in this form has the advantage of bringing out the carefully prepared statements of those who presented papers and the various experiences and views of others who joined in the discussions.

The demand for the proceedings of the previous meeting has been so great as to exhaust the first edition and require a second issue.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. SECRETARY OF THE INTERIOR.

Publication approved.

M. L. JOSLYN,
Acting Secretary.

(8-030.)

Please fill and return this Receipt.

_____, 188 .

I have received from the Bureau of Education the following: _____

(☒ PLEASE SIGN THIS LEGIBLY.)

Name, _____

Profession or official position, _____

Post-office address (town or city, county, and State), _____

If city, street and number, _____

NOTE.—Any criticisms or remarks which your examination of this report may suggest are respectfully invited.

[12796—50,000.]

UN

NATIONAL EDUCATIONAL ASSOCIATION.

DEPARTMENT OF SUPERINTENDENCE.

PERSONS IN ATTENDANCE.

General S. C. Armstrong, principal of Normal and Agricultural Institute, Hampton, Va.

Principal George P. Beard, State Normal School, California, Pa.

Professor Albert S. Bickmore, PH. D., American Museum of Natural History, Central Park, New York.

Hon. John M. Birch, superintendent of schools, Wheeling, W. Va.

Professor J. H. Blodgett, Rockford, Illinois.

Henry C. Brown, esq., secretary of the international committee of the Young Men's Christian Association, New York, N. Y.

Mr. G. M. Brumbaugh, Normal College, Huntingdon, Pa.

Hon. B. L. Butcher, State superintendent of free schools, Wheeling, W. Va.

Hon. N. A. Calkins, president of the Department of Superintendence, assistant superintendent of schools, New York, N. Y.

Hon. G. F. T. Cook, superintendent of colored schools, Washington, D. C.

Hon. Newton C. Dougherty, superintendent of schools, Peoria, Ill.

Mrs. Sarah B. Earle, member of board of education, Worcester, Mass.

Professor J. R. Eastman, Naval Observatory, Washington, D. C.

Rev. Horace Eaton, D. D., Palmyra, N. Y.

Hon. John Eaton, United States Commissioner of Education, Washington, D. C.

Hon. C. G. Edwards, assistant superintendent of schools, Baltimore, Md.

Miss A. C. Fletcher, Indian Territory.

A. P. Flint, esq., Philadelphia, Pa.

W. H. Gardiner, esq., chief clerk Bureau of Education, Washington, D. C.

Rev. J. A. Hamilton, Norwalk, Conn.

Hon. Henry M. Harrington, superintendent of schools, Bridgeport, Conn.

Hon. Wm. T. Harris, LL. D., Concord, Mass.

Rev. A. G. Haygood, D. D., general agent of the John F. Slater fund, Oxford, Ga.

- Hon. John Hitz, Washington, D. C.
Hon. Dwight Holbrook, superintendent of schools, Clinton, Conn.
B. T. Janney, esq., supervising principal, Washington, D. C.
Hon. H. S. Jones, PH. D., superintendent of schools, Erie, Pa.
J. R. Keene, esq., supervising principal, Washington, D. C.
Hon. John E. Kimball, superintendent of schools, Newton, Mass.
Hon. William Lawrence, First Comptroller of the Treasury, Washington, D. C.
B. G. Lovejoy, esq., member of school board, Washington, D. C.
Hon. George J. Luckey, superintendent of schools, Pittsburgh, Pa.
G. G. McLean, esq.
Hon. A. P. Marble, PH. D., superintendent of schools, Worcester, Mass.
Rev. A. D. Mayo, Boston, Mass.
Professor H. P. Montgomery, supervising principal of colored schools, Washington, D. C.
W. S. Montgomery, A. M., supervising principal of colored schools, Washington, D. C.
Hon. M. A. Newell, LL. D., State superintendent of public instruction, Baltimore, Md.
Hon. B. G. Northrop, LL. D., ex-secretary State board of education, Newton, Conn.
Professor C. C. Painter, Nashville, Tenn.
Rev. Wm. S. Palmer, D. D., chairman board of education, Norwich, Conn.
Rev. W. W. Patton, D. D., president of Howard University, Washington, D. C.
Professor E. A. Paul, principal of high school, Washington, D. C.
Hon. Jos. Desha Pickett, State superintendent of public instruction, Frankfort, Ky.
Professor Zalmon Richards, Washington, D. C.
Hon. A. J. Rickoff, superintendent of schools, Yonkers, N. Y.
Hon. Henry R. Sanford, superintendent of schools, Middletown, N. Y.
J. W. Schermerhorn, esq., New York, N. Y.
Hon. James H. Smart, ex-State superintendent of public instruction, Indianapolis, Ind.
Hon. R. W. Stevenson, superintendent of schools, Columbus, Ohio.
President Eli T. Tappan, Kenyon College, Gambier, Ohio.
Dr. Henry R. Waite, special educational agent of the Census Office, Washington, D. C.
Dr. Charles Warren, statistician of the Bureau of Education, Washington, D. C.
Hon. Joseph White, ex-secretary State board of education, Williamstown, Mass.
Hon. J. O. Wilson, superintendent of schools, Washington, D. C.
J. M. Wilson, esq., Washington, D. C.

FIRST SESSION—TUESDAY EVENING.

WASHINGTON, *February 20, 1883.*

The members of the Department of Superintendence of the National Educational Association and their friends met in the High School Hall at 8 o'clock P. M., Hon. N. A. Calkins, the president, in the chair, and Hon. H. S. Jones secretary.

After calling the meeting to order and announcing the sessions for the following day, Mr. CALKINS said:

In introducing to you the speaker for this evening, it is proper that I should state, in regard to the selection of the subject which he will present—natural history in public schools—that the invitation to Professor Bickmore to come before you was suggested by the character of the work which he is doing for the public schools of the city of New York. Believing that there would be many of those in attendance at this convention who would be pleased to learn what is done there in the matter of introducing natural history into the public schools and knowing that any mere description of that work would fail to give you an accurate idea of it, Professor Bickmore was invited to come here, to bring with him some of his apparatus, and to show you what he is doing for the schools of that city.

I may add that arrangements have been made with Professor Bickmore by which he gives on Saturdays, in the Museum of Natural History at Central Park, lectures before teachers of the grammar schools, as a means of preparing them to give instruction in natural history in the schools where they are employed. These lectures are thus made to awaken an interest in this subject among the pupils in the schools, which leads them to visit the museum, as many do with their teachers. During lessons in school, which follow these visits, questions are asked these pupils concerning the animals which they saw and the subject of the lesson is discussed in an intelligent manner.

But Professor Bickmore will be able to represent to you what he is doing much better than I can tell you. I now have the pleasure of introducing to you Prof. Albert S. Bickmore, of the American Museum of Natural History, Central Park, New York, who will address you on the subject of

NATURAL HISTORY IN PUBLIC SCHOOLS: ITS UTILITY AND PRACTICABILITY AS ILLUSTRATED BY THE METHODS ADOPTED IN NEW YORK CITY.

Professor BICKMORE said:

MR. PRESIDENT, LADIES AND GENTLEMEN: About two years and a half ago the authorities of the museum with which I am associated addressed

a letter to the board of education of our city, suggesting that they select a limited number of their teachers to come up to our institution, and that I should give them conversational talks (we scarcely call them lectures) upon the objects that we had on exhibition in our halls. It proved to be an extremely stormy day in winter when the first gathering took place, but all those invited were present, and we were at once impressed with the magnitude and importance of the work thus thrust upon us. The attendance of the teachers was so constant that the six informal talks were extended to eighteen or twenty. The board of education then addressed us a letter expressing their high estimation of the work thus begun and asking that fifty teachers be allowed to be present at the next course. At the conclusion of these lectures the board wrote us a second letter stating that there were one hundred and four schools in our city under their direction and asking if accommodations could be made for at least one teacher from each of them, in order that there might be a distinct, definite influence going out from our museum every week to each school, conveying important instruction and aiding the teachers to give the most complete information to their pupils upon human and comparative anatomy and zoölogy and other subjects upon which the board might require oral instruction to be given in the common schools. A course on zoölogy is now in progress, and every Saturday our little hall is filled to overflowing.

Believing that the sense of sight is the royal avenue to the mind and that all information which can be conveyed by the eye is much more complete and satisfying than that conveyed by the ear, I planned to give the instruction desired by ocular demonstration, that is, by exhibitions. A large part of the objects we wished to display to the teachers are too small to be seen distinctly by the naked eye, and yet their remains in some places make up the chief bulk of mountain ranges. Other animals, as the deer, the ox, the horse, the moose, and the elephant, are far too large to be transported from the exhibition halls to the lecture room, and yet they are among the most interesting objects to the children that are to be found in the animal kingdom. How we could easily and without loss of time place these various objects visually before the class of teachers was the problem that came to us when we found the personal interest they manifested in this department of natural science. We purchased the most complete stereopticon to be obtained, but we found that photographic transparencies of the objects we desired to display could not be discovered in any of the lists of slides offered for sale in London, Paris, or Vienna, and that, if any teacher had hitherto prepared them, he had never published any account of his work nor indicated how his successors might avail themselves of his labor.

A few views of the animals in the Zoölogical Society's Gardens of London were found and a few copies from works on anatomy; but no continued, systematic series of illustrations existed, so far as we are aware. An assistant skilled in this department of the photographic art was em-

ployed to make negatives and slides from the specimens on exhibition in our public halls, supplemented by copies from the best illustrations in standard works on natural history. The prominent book and map publishers of London and New York cordially aided by striking off uncolored impressions of their wood-cuts and engravings for the use of our photographer, who has already made some 800 negatives, in addition to the large series of views we have purchased from every available source. The transparencies which we have made at the museum so far exceed in clearness and brilliancy any that we have found in the market that we propose in time to use only prints on glass from negatives of our own manufacture. This system of illustration can be made just as elaborate as the time and means of the instructor may permit. What we have so far accomplished we regard merely as a beginning in the important work of enabling teachers to properly educate their pupils in zoölogy. The same mode of effective illustration is equally applicable and important in teaching physical geography, geology, and mining, and every other department of natural science which can be rendered more instructive and therefore more interesting by photographic views, diagrams, or ideal sketches. The field of labor thus opened to the instructor is a wide one, for it demands that he shall not only be thoroughly conversant with the latest and best maps and drawings and other means of illustration that now exist, but that he shall keep constantly adding new transparencies from the latest explorations in these various departments in every land.

The negatives being once provided, the slides can be supplied at little more than half the price now paid for such transparencies, and, while we shall use here this evening the oxyhydrogen or lime light we have brought from New York, I am happy to say that I have seen these same slides shown by a light burning simply kerosene oil, and the illumination was sufficient for an ordinary class room containing 50 to 75 pupils. Any teacher here present that can take proper care of an ordinary kerosene lamp can, therefore, with the simple lantern of which I speak, effectively repeat to his class the illustrations which our lime light will now place on the screen.

This mode of exhibition necessitates a darkened room, and, as I have experienced the inconvenience of not being able to exhibit specimens or make diagrams on the blackboard while the illustration is on the screen, I have introduced into my lecture room a second lantern, which throws a light upon any portion of the blackboard I may desire, so that the classification of the animals to be shown is constantly before the audience while the several specimens appear in succession on the screen. In an adjoining place in the room I have fitted up a series of shelves, like a case in our public hall, on which the specimens to be described are arranged. Diaphragms pierced with round or square holes of varying dimensions will light up any portion or all of the specimens on the shelves, and in this simple method we are able to transfer our audience instantly

from the lecture room to our exhibition halls, and that, too, in a more effective way than if the audience actually passed into one of the large rooms, for in the hall some persons would be looking at one object in one case while others would be interested in other objects in other cases; but by confining the light to the specimens that are being described we concentrate the attention of all to the object or group of objects we are discussing, and the mind of the speaker and the minds of all his audience necessarily move on from point to point in the discussion in perfect harmony.

Professor Bickmore then gave a description of the building occupied by the American Museum of Natural History, which contains four stories and a gallery and was erected at an expense of \$700,000. He then showed upon a large screen, by the aid of a stereopticon, the following subjects, calling attention to the principal facts of interest concerning each: protozoans: a young sponge, the Venus flower basket, corals, ideal sketch of the bottom of the sea in the Mediterranean, a coral island (atoll, Bermudas), brittle stars; mollusks: a common salt water mussel, oysters, the mode of dredging off the shores of France, a dredge, a helix, a cone, a large squid, the squid as it was represented in old books; articulates: a "common" and a "spiny" lobster, a lobster car, the violet crab of Jamaica; insects: a minute insect, a flea, Colorado beetle; vertebrates: the arm and hand of a fish, tortoise, whale, deer, seal, dog, mole, bat, ape, and man; fishes: a climbing perch, the circulatory system of a cod; reptiles: a boa constrictor, a water boa or anaconda, the structure of the fangs of a rattlesnake, an iguana, a tropical scene from Brehm's Thierleben, chameleon, turtle catching, an ideal view of marine animals in the Triassic period, a landscape in the coal period; birds: an ostrich in the Paris museum, a gull, sand-piper, flamingo, a male and female humming bird, the migration of birds, a view on a Siberian river in early spring, the nest and young of the gray plover, the light-house at Heligoland on a migration night, a map of our own country, a map of South America, a relief map of Europe; mammals: the skeleton of a cow, the Brahman bull, Brahman cow and calf, antelope from the Rocky Mountains, a giraffe, the skeleton of a giraffe, skeleton of a deer, a fossil deer found in Ireland, a camel, a dromedary, skeleton of a camel, the wild boar of West Africa, the skeleton of a hog, African wart hog, rhinoceros, the skeleton of a rhinoceros, a horse, zebra, zebra hunting in South Africa, a European wolf, a royal Bengal tiger, lion, the skeleton of a lion, the animals of the stone age; man: two slides of human anatomy (colored), the African race—a view on the Congo, Stanley and his followers, the Zulus; the Mongolian race—a Chinese mandarin, a Chinese hamlet among the tea hills, curling the tea leaves, sorting tea; the Aryan race—a native of India, a Mohammedan prince of India, a Mohammedan temple at Lahore.

The president announced that there would be a business meeting

immediately after the dispersion of the audience and requested the members of the department to remain.

At this meeting the following resolution was offered by General EATON, and was adopted:

Resolved, That an executive committee of three members of the department be appointed by the president, and it shall be the duty of said committee to arrange and report an order of proceedings for this meeting.

The president named as this committee Messrs. Wilson, of Washington; Marble, of Worcester; and Pickett, of Kentucky.

Mr. WILSON offered the following:

Resolved, That the president of this department be requested to appoint a committee whose duty it shall be to represent to Congress the views of this association on the subject of national aid to education, and to take such further action in the premises as may be deemed advisable.

After the unanimous adoption of this resolution, the department adjourned to meet on the following morning in the lecture room of the Congregational Church.

SECOND SESSION—WEDNESDAY MORNING.

WASHINGTON, *February 21, 1883.*

The members of the department assembled in the lecture room of the Congregational Church at 10 o'clock and were called to order by the president. Rev. A. D. Mayo opened the session with prayer.

Hon. Henry M. Harrington, of Bridgeport, Conn., was elected treasurer, and Mr. J. E. Rockwell, the stenographer, assistant secretary.

Mr. WILSON, from the committee on order of exercises, announced the following topics and speakers:

Address by the president.

Industrial education. Reports on the subject to be read by Supt. John E. Kimball and Dr. Charles Warren; followed by discussion.

Educational lessons of the census, by Dr. Wm. T. Harris.

The following letter was received:

OFFICE OF SUPERINTENDENT OF PUBLIC SCHOOLS,
FRANKLIN BUILDING,

Washington, D. C., February 20, 1883.

DEAR SIR: The members of the department of superintendence are cordially invited to visit the public schools of this city. The schools will be in session to-morrow, Wednesday, and will then be closed until Monday next. The Webster School, corner Tenth and H streets, and the Franklin School, corner Thirteenth and K streets, are both near the Congregational Church, the place of meeting for the department.

Very respectfully,

J. ORMOND WILSON,
Superintendent.

Hon. N. A. CALKINS,
President, &c.

The president announced that the treasurer would receive applications for membership in the association.

The assistant secretary read several expressions of regret from members unable to be present. Among the letters received were those from Hon. Thos. W. Bicknell, LL. D., editor *Journal of Education*, Boston, Mass.; D. N. Camp, A. M., New Britain, Conn.; Hon. Charles L. Collier, superintendent of schools, Memphis, Tenn.; Hon. A. Coward, State superintendent of public instruction, South Carolina; Hon. J. L. M. Curry, LL. D., general agent of the Peabody education fund, Richmond, Va.; Rev. J. H. Cuthbert, Washington, D. C.; Hon. R. R. Farr, State superintendent of public instruction, Richmond, Va.; Hon. J. M. Fish, superintendent of schools, Little Rock, Ark.; Hon. Aaron Gove, superintendent of schools, Denver, Colo.; E. L. Kellogg, esq., 21 Park Place, New York; Charles G. Leland, esq., Philadelphia, Pa.; Hon. E. B. Neely, superintendent of schools, St. Joseph, Mo.; Hon. James MacAlister, superintendent of schools, Milwaukee, Wis.; W. A. Mowry, PH. D., Providence, R. I.; Rev. A. M. Pitzer, D. D., Washington, D. C.; Lieut. R. H. Pratt, U. S. A., superintendent of Indian training school, Carlisle Barracks, Pa.; Hon. W. C. Rote, superintendent of schools, San Antonio, Tex.; Hon. J. C. Shattuck, State superintendent of public instruction, Denver, Colo.; W. E. Sheldon, esq., editor of *The Primary Teacher*, Boston, Mass.; Governor Hugh S. Thompson, Charleston, S. C.; Gen. Francis A. Walker, Census Office, Washington, D. C.; Hon. J. P. Wickersham, LL. D., ex-State superintendent of public instruction, Lancaster, Pa.; Hon. C. S. Young, State superintendent of public instruction, Carson City, Nev.

Mr. CALKINS, the president of the Department of Superintendence, delivered the following address:

ADDRESS OF THE PRESIDENT.

MEMBERS OF THE DEPARTMENT OF SUPERINTENDENCE OF THE NATIONAL EDUCATIONAL ASSOCIATION: Once again representatives of the educational systems of the States and cities of the nation have assembled at its capital to consider matters pertaining to the interests of public instruction. The fields of labor occupied by those gathered here are widely separated and the work performed by each has differing characteristics, yet there exists a union of purpose among all which binds us together as a brotherhood, laboring for the noble cause that contributes much toward the stability and prosperity of our beloved country.

I rejoice with you that it has become our annual custom to come hither and confer with each other fraternally in relation to those things that belong to a general diffusion of education among all classes of people, and that in this work we have common interests and aims.

The circumstances attending our respective spheres of work often compel attention to matters that demand serious deliberation and the exercise of sound wisdom to guide aright in the acts that must follow. In the midst of the difficulties that sometimes meet us we long to

inquire of a successful brother who has overcome similar obstacles and learn from his experience. These fraternal conferences furnish opportunities for such inquiries; they also inspire our hopes and strengthen our hands for better work and greater success in the cause of education.

The present outlook as to progress in the direction of better elementary teaching and the corresponding results that follow in general education is gratifying. During the past ten years great strides have been made by the thinking, progressive teachers toward a clearer knowledge of child nature and in right ways for reaching child mind. The results appear in the more general development of power among the pupils of these teachers to observe carefully, of ability to think understandingly concerning that which has been seen, and in the firm foundation thus laid for subsequent attainments in knowledge.

It is fast becoming understood that mere imitators soon attain their growth in teaching and that the end of real progress with them is near the place of starting. Among the hopeful signs for the future is the fact that so many of our schools are becoming fields in which the teachers are themselves making important discoveries in the true work of education, instead of contentedly following the traditionary customs of the past. The fact that so many teachers are turning their attention to psychology and earnestly inquiring after a science of education which may guide them in the art of teaching is a hopeful sign.

Great changes, also, have been made in the means for diffusion of educational intelligence during the past decade. We now have not only monthly and bimonthly but weekly journals, with large circulations, devoted to the interests of education in all its varied aspects. In addition to these the weekly and daily papers reflect the general interest of the public in relation to educational matters in their several localities.

Whenever the minds of those engaged in the work of education in one locality become unusually active in relation to a particular department of the work or concerning anything intimately affecting it, that activity widens and widens, like the circling waves on the placid lake into which a pebble has been tossed, until the distant shores are reached. Let the cry be raised in Boston against the burden of too many text books, and its wail will be echoed in Chicago and in San Francisco. If the public in Quincy discover a supposed better way for education, pilgrimages are made, and the towns of the East, of the West, and of the South are moved thereby.

As an instance of the increasing interest in matters that relate to methods of education, it may be mentioned that only a few months ago the Bureau of Education issued, as a circular of information on industrial art in schools, an article prepared by Charles G. Leland, esq., of Philadelphia, in which the way is pointed out for making hand work and school work cooperate with each other in general education and culture. Fifteen thousand copies of this circular of information have

been distributed already. The mail of a single day recently brought orders for more than six thousand copies.

In these and kindred facts, we may find much for encouragement and hope that the widening diffusion of intelligence on subjects pertaining to public education will ere long produce a corresponding extension of increased facilities and improved character in the common schools of every State. In view of these facts, we are reminded, also, of the necessity for careful consideration of matters relating thereto, especially by those who occupy positions which should exert great influence in deciding what the public schools shall become, by means of an intelligent public opinion. It is fitting on this occasion, therefore, that we direct our deliberations to those matters which relate intimately to the work of securing a better education for the people. And in these deliberations we should aim to call out the best thoughts and ripest experience on the topics considered, while each endeavors to say the most in the fewest words possible.

It was with the view of facilitating such deliberations that I placed in the programme of subjects for this meeting that of "School supervision: its specific aims and methods employed," and invited superintendents to consider topics designated under this subject and to present at this meeting results of their experience in relation thereto, in concise statements. And, further, I believe that a fair portion of the time of the meeting of this Department should be spent in efforts less formal than exhaustive addresses, with a view to making available the experience and wisdom of the greatest number in matters pertaining to our special duties in connection with the work of education. And with this view, I commend to your consideration the advisability of devoting the time of one session of this meeting to topics relating to school supervision. In this connection allow me to suggest that the least possible time be consumed in stating theories and that the chief aim of all be to show how the desired results in supervision may be secured. May each of us return to his field of labor with garnered treasures.

Finally, allow me to bespeak your counsel and coöperation in efforts to make this a profitable and pleasant meeting.

INDUSTRIAL EDUCATION.

Superintendent JOHN E. KIMBALL read the following letter from the principal of the Dwight School, Boston, with his report on industrial education :

BOSTON, *February 12, 1883.*

MY DEAR SIR: The experiment in industrial education is to be tried in the Sherwin School, under the auspices of the school board, during the coming season. In my own school the expenses were paid by a syndicate of wealthy gentlemen and ladies who were interested in the subject. The success was so great that the board assumed charge of it, and now only await an appropriation from the common council of \$500 to perfect their arrangements.

I have no doubt the success will be as decided in the Sherwin School as it was with

me, and, if so, the plan will gradually grow into favor, and will be extended to other boys' schools throughout the city.

Yours, very truly,

JAMES A. PAGE.

Hon. N. A. CALKINS,

President Department of Superintendence.

REPORT.

CITY OF BOSTON.

IN SCHOOL COMMITTEE, July 5, 1881.

Ordered, That the principals of the Dwight and Sherwin Schools be authorized to accept the liberal offer of the Industrial School Association, and to permit such of their pupils to receive the instruction thus tendered as may, in their judgment, be best fitted to profit by it, the instruction to be given at such time as will least interfere with the progress of the pupils in their regular studies.

Ordered, That the abovementioned principals be instructed to report to the board the results of the instruction thus given at the end of the school year.

In compliance with the above order, I respectfully submit the following as my report:

In order to carry out the generous offer of the association, it was thought necessary, at the outset, to secure a good room in which the lessons in manual instruction might properly be given to the pupils of the two schools mentioned in the order. During the early fall considerable time was taken and many visits were made to different parts of the district in search of such quarters. The committee of the association found, however, no single place that was not open to serious objection either on the ground of poor light and ventilation or on that of bad surroundings.

It was not until they concluded to accept one of the school rooms of the Dwight School building, for the time being not in use, that they felt that any progress had been made in that direction.

It was owing to this difficulty of obtaining suitable rooms that Mr. Stone, of the Sherwin School, agreed with the committee and myself that the experiment had better be confined to one school, and that it should be the one under whose roof the trial was to be made. This room, though rather small (27 feet by 27 feet), was found in other respects to be a good one for the purpose.

The superintendent of public buildings ordered the seats to be taken out, the room was cleared of all its school furniture, the benches were placed, the tools bought, the teacher, Mr. Walter Bachelder, a carpenter and builder, of Chelsea, was secured, and everything was ready to begin in December, 1881, soon after the annual municipal election. This room had been designated by the city council as one of the voting places in the ward.

On the first Thursday of January the instructor gave his opening lesson to a class of eighteen boys, all that could be accommodated at the three benches at one time. These boys had been selected by myself from the graduating class, without reference to their standing, and no conditions were made with them except that they should not fall behind in their regular school work. Another class of the same number was selected from the second, third, and fourth classes, in order that the experiment might be tested by a wider application to ordinary grammar school material. Many of these latter had already handled tools, to a certain extent, either at home or in their fathers' workshops.

In arranging the practical details of the school with Mr. Bachelder, it had been agreed that school discipline should be maintained throughout the sessions; that the programme should be carefully written out on the blackboard; that each boy should be marked on the work done; and that a record of it should be kept. All this was faithfully carried out, and contributed, as I think, largely to the final success.

From this beginning to the close the school went on with unbroken and successful regularity. The teacher was promptly on hand, the order was good, the pupils were interested. It was delightful to see the eager desire manifested everywhere in the room to do the day's work well.

There was no absence, no tardiness. On one occasion a count was made, and seventeen out of eighteen pupils were found at work at one o'clock, when two was the hour for beginning.

It was feared that the noise of many hammers and other tools, in use at once (as was necessary in giving the same lesson to a whole class), would be so great that the other rooms on the same floor might be seriously disturbed. It was arranged, therefore, that the school in the adjoining room should proceed to the hall whenever a lesson in the training room was going on. Practically, however, no trouble was felt from this source. The walls in the school room were found to be so thick as to deaden the sound almost completely.

It was thought, also, that taking a part of a class away from its regular school work would result in more or less detriment to its progress in the prescribed studies. Here and there a complaint was made by the teacher of some second class boy that he was not doing his work well in his own room; but the pupil, in every case, was so anxious to remain in the "carpenters' class" that a word or two of warning was sufficient to bring his performance up to the standard again. * * * I consider that the results go far to prove that manual training is so great a relief to the iteration of school work that it is a positive benefit rather than a detriment to the course in the other studies.

The lessons, as prepared and given by Mr. Bachelder, are appended to this report and marked "A."

The school was visited by a large number of ladies and gentlemen, some of them from distant parts of the country and many of them anxious to learn the details of the plan upon which the school was carried forward. It was also visited by members of the school board, the superintendent of schools, and by many educators of all grades, thus showing a widespread interest in the general question of manual training in the public schools.

The cost of the school to the association from January to May, inclusive, five months, as furnished by Henry S. Grew, esq., treasurer, covers every item of expense in a school of this size, except those which, in another building, would have to be met under rent, lighting, and heating. The figures in full will be found in the paper marked "B."

Here, perhaps, I ought to close my report, having answered the demands of the order passed by the school board in giving the results of the instruction in manual training in the Dwight School. But I have a conviction, and, with permission, beg to state it here, that this instruction is surely in the line of the teaching that is to be. I would be glad, therefore, to see the experiment still further tried and all the experience which has been gained and all the plans which have been essayed fully formulated, availed of, and worked out into practical details, so that by and by, at the proper time, the best Kindergarten work, the best object teaching, and the best methods of manual instruction shall be known and, furthermore, shall be "organically combined with the whole scheme of education, and be made to support and coalesce with all the other studies of the child."

It is easy to see that this hand instruction may be made the means of teaching whole chapters of arithmetic more thoroughly. I have seen it made the means of teaching geography and natural history effectively in our own school.

There are high authorities who believe there can be no thoroughly clear, vigorous, and enlightened brain without the cultivated hand. Such are Sir Charles Bell, the author of the Bridgewater Treatise on the Hand, and Dr. William B. Carpenter, the physiologist, now visiting this country. If these men are right, then manual instruction introduced into our schools would be a step forward, because it would have

a special value of its own in developing the mind, which is the avowed purpose of all schools.

The great difficulty will be the lack of competent teachers. But that difficulty may be met, as it has been successfully met once before. What has been done in the matter of drawing may yet be done in industrial work. A corps of teachers, as suggested by General Walker, may be furnished by the Institute of Technology, and that institution may eventually do for industrial what the normal schools of the State have done for general instruction.

I have, in closing, to acknowledge the interest shown in the school by very many friends, to whom I feel under great obligation; especially to the Rev. Mr. Chaney, the president of the Industrial Association, and to Mr. Henry S. Grew, its untiring treasurer; to Dr. J. G. Blake, who spoke words of encouragement and advice to the boys in the midst of their work; to Mr. Bachelder, the faithful teacher of the class; and to many others who gave their encouragement and support by visiting the school again and again.

JAMES A. PAGE.

"A."—Topics of the Industrial Class of 1882.

Lesson I.—(1) Striking square blows; (2) nailing, first process; (3) nail and setting nail; (4) nailing on line; (5) nailing flush; (6) blind nailing.

Lesson II.—(1) Toenailing; (2) straightening small piece of pine; (3) planing surface of small piece of pine; (4) planing surface of large piece of pine.

Lesson III.—(1) Joint and square the edge of the board; (2) remove the jointer's iron, and readjust it; (3) learn to use the gauge; (4) learn to use the splitting saw; (5) learn to use the rule and pencil in drawing parallel lines.

Lesson IV.—(1) Learn to use the chalk and line; (2) learn to use the try square with pencil and knife.

Lesson V.—(1) Learn to use the cutting-off saw; (2) remove the jointer's iron; (3) sharpen the plane iron on the oil stone.

Lesson VI.—(1) Learn to use the cutting-off saw with bench hooks; (2) learn to use the block plane; (3) learn to cut a chamfer with a chisel.

Lesson VII.—(1) To cut a chamfer with a plane; (2) to learn to use the bit and bit brace.

Lesson VIII.—(1) To plane a piece to an even thickness and width; (2) to make several pieces of the same length and width; (3) to make one piece of a certain length and width.

Lesson IX.—(1) To nail together several pieces, work out the same, making a box with three apartments; (2) to plane a piece of an even thickness, one end to be wider than the other; (3) to make a tenon.

Lesson X.—(1) Paring with chisel; (2) cutting chamfer with chisel and plane; (3) to make a piece having eight sides or corners.

Lesson XI.—(1) Marking and boring; (2) to reduce each end of the eight-cornered square pieces to fit a $\frac{1}{2}$ hole; (3) to make a mortise.

Lesson XII.—(1) To cut a square block to a described shape; (2) to chamfer the same; (3) to sand-paper the several pieces.

Lesson XIII.—(1) Sand-papery; (2) fitting together the different pieces to make good joints; (3) to put together the different pieces with glue.

Lesson XIV.—(1) To make a box for the oil stone, to be made of two pieces of wood; (2) to halve together two pieces.

Lesson XV.—(1) To make an open mortise and tenon; (2) gluing.

Lesson XVI.—(1) Make a double open mortise and tenon; (2) sand-papery; (3) to plane and square.

Lesson XVII.—(1) To make a tenon (review); (2) to make a mortise; (3) to fit them together; (4) to plane and square.

Lesson XVIII.—(1) Planing and squaring; (2) marking; (3) making tenon (review); (4) mortise to be made (review); (5) to fasten mortise and tenon with draw bore.

"B."—Statement of cost of industrial school held in the Dwight School-House, Boston, January to May, 1882.

Thirty-five lessons, of two hours each, to two classes of 18 each (36 boys, each two hours' lesson per week):

Instructor	\$175 00
Stock: boards and material to work up	20 75

Sundries		\$21 43
Two new benches and labor of starting the school	\$146 64	
Estimated cost of one old bench	50 00	
		196 64
Purchase of new tools	120 48	
Estimated cost of old tools on hand when school was opened	161 90	
		282 38
Janitor of Dwight School		15 75
Total		711 95

HENRY S. GREW, ,
Treasurer Boston Industrial School Association.

JUNE 1, 1882.

The following communication addressed to the members of the Department of Superintendence by Charles G. Leland, esq., in reference to industrial education in Philadelphia, and containing information supplemental to the Circular of Information of the Bureau of Education, No. 4, 1882, was read:

Regretting that I cannot be present at the teachers' convention, I take the liberty of making by letter a few remarks on industrial art as a branch of education in schools and on the success of the experiment as conducted in Philadelphia.

I must premise that the system of which I speak is different from that pursued by the industrial schools. Properly speaking it occupies the time between the Kindergarten and the industrial school. The latter is specially adapted to boys and to technological or mechanical studies. A high authority in such schools has declared that their instruction was not suited to even boys of less than 14 years of age. This is nothing to the discredit of the schools. A university is not an infant school. Again, the industrial school requires a building and a fortune to establish it. It can only be carried on in a city. The Philadelphia system of industrial art teaching attempts, first, to find out what kinds of manual labor are really adapted to all boys and girls whatever, especially to those under 14 years of age, and, secondly, whether it be possible to introduce some method of teaching them in all schools, in families, and to individuals.

Extensive travel and earnest study of this subject during many years taught me that, while children cannot learn mechanical trades without detriment to mental studies or health, they can easily acquire the minor or decorative arts, including that of decorative design, which is the basis of them all. I have never found in any country that girls or weak or very young boys could with "humanity" be set at shoemaking, weaving, or factory work; but they can all learn outline design and modelling in clay in a few weeks or months, and this to a degree that would astonish even an artist who did not know of what children are capable. They can also carve wood, embroider, work in leather, and emboss sheet brass. That all of this can be well done by pupils only ten years of age is being shown to all who choose to visit my Philadelphia school.

It has been strongly urged against this system that it teaches only art and "fancy work," that it is therefore useless, and above all that what *boys* want is a good practical education by which they may make a living. Now this is very true. Boys *do* need a [practical education. But to teach an average girl or boy of ten or eleven or even twelve years a *trade* is impracticable and visionary. The practical men had the experiment all to themselves in their own way for many years in Pennsylvania, as in other places, long before they were troubled with visions of art, but they did not succeed with the little ones. If it had been possible this whole world of ours would have become like many of the factories of New England at the present day, a hell of hard labor for infants of eight and even six years of age. But in India and China, where human life is so cheap, although children are made profitable at art work, they cannot be profitably employed at *trades*.

I have conducted this experiment without making a cent by it, for the purpose of testing human capacity. I have learned by it that, as the flower prepares the fruit, art work in children is a proper preparation for more practical callings. Outline design and modelling qualify children to become useful in all factories where any kind of casting or shaping anything to graceful forms is required. Easy embroidery leads little girls to the far more difficult art of good plain sewing. Wood carving naturally includes the elementary work of carpenters and joiners. Sheet brass embossing, little known as yet and first made known to amateurs both in England and in this country by my manual on the subject, calls forth or develops both the power of design and of mechanical execution to a really remarkable degree. A more important subject, to which I have paid particular attention, is the fact that the study of design and artistic hand work develops in all children intellectual powers of every kind. Given two boys of equal mental power, and let one study the three R's alone, while the other at the same time learns to design and model, and it will be found at the end of, say, two years that the latter will in all respects be by far the cleverer of the two. And it could not be otherwise. When the curiosity and interest of a boy are awakened in art he begins to observe the design in every shop window, in every piece of furniture, in every wall paper. He has entered a new world. In a few weeks the boy can tell you if a lace pattern or a sofa cover is correctly designed (I am sorry to say that in most cases he can tell you that it is *not*), and give reasons for it. Is not this intellectual development? Is it not a practical preparation for a great deal of business? Would it spoil a boy for selling lace, dry goods, wall papers, or furniture? Would he know less about metal work? Would not, on the contrary, the knowing how to design patterns be through life of real use to him in manufacturing or selling almost any kind of fabrics?

I have no pupils who receive from me and my assistants more than seventy hours of instruction during the year. In this time they learn to design fairly well, and with design learn one or two other minor arts.

That this is actually done is proved by the results. Those who will may visit the school, see the pupils at work, and examine the results. Very recently, since I have been able to engage teachers for wood carving and sheet brass embossing, there has been a great improvement in the work.

If I am asked what boys and girls can learn while attending school and without adding to the burden of the crowded course of studies, I reply, outline design according to a very simple elementary method founded by myself on principles long known to such teachers as Owen Jones, and that when this is learned there is very little trouble experienced in wood carving, modelling brass, embroidery, sheet leather work, setting mosaics, working in papier mâché or any other plastic substance. As regards finding *time* for this, there is not a school child in Philadelphia who would not gladly keep up his or her average in other studies to be allowed to come to the Public Industrial Art School.

I consider it as proved from my own observation that design and art work stimulate quickness of perception and awaken interest in all culture. If there are any present who have not investigated the subject, I commend to them the perusal of the pamphlet on Industrial Art in Schools, published as Circular No. 4, 1882, by the Bureau of Education, Washington, under authority of the Commissioner, General John Eaton, who is familiar with the school and knows what the pupils have done. I must in this connection express my regret that I was unable to have made betimes certain specimens of our art work for exhibition at this meeting.

Of this pamphlet I may be allowed to state that it attempts to set forth clearly and practically how any person whatever may learn the principles of decorative design with the aid of an elementary manual, and that while thus learning one may also teach them to a class. When this is done any of the minor arts presents no difficulty. The interest which the pamphlet has awakened in every corner of the Union is shown by the great number of letters I have received from persons interested in education informing me that they intend to test the Philadelphia system in schools or families.

What I have ventured to characterize as the Philadelphia system is the theory that decorative art work is better suited than mechanical work for boys and girls under 14 years of age, but that the artistic shall be so taught as to lead on to the mechanical or to technology. This art work is to be taught according to a simplified system of design, in which free hand drawing from the shoulder is combined with the most mechanical aids and appliances. In this system original design is taught from the first lesson. It is in full operation and has been perfectly tested, not only in the Public Industrial Art School, but also in the Ladies' Art Club of Philadelphia, of which I am president. In the school I have 150 pupils, soon to be increased to 300; in the club I have 200 grown-up

scholars. The same system of minor instruction is also pursued in both institutions.

I cannot conclude this brief communication without expressing my gratification at observing how much is being done for education at present—wisely, efficiently, and nobly—without much appreciation or aid from either the public or its exponent, the press. Twenty columns of politics, half of them the politics of the slums and grogeries, or little better, may be found in many newspapers to one on education. It is in the hands of the teachers that the souls, the intellectual lives of all the coming generation, are placed. The teacher should be the highest, the most honored in the land. He was actually so in early days, when the priest and teacher were one. But there is a time coming, and that soon—I put the prophecy on record—when education will enter into our national politics, and when candidates shall be measured, not by the blind and brutal tests of mere faction, but by their views as to how to advance culture, to promote honesty, to train the young, and to keep training and teaching man at every age. The best patriot is the man who will do most to bring this about.

In the discussion which followed the reading of these reports, Mr. MARBLE said :

I wish to make a remark upon a certain phrase in this excellent paper from Mr. Leland, where evidently the author's rhetoric ran away with his logic or truthfulness. He speaks of New England factories as hells of hard work and labor for children six or eight years of age. Now, I mistrust that the latest information which the writer has may have been obtained from some inaugural address where education may have been mixed up with politics. I would call attention to the law which forbids the employment of any children under the age of ten years. Furthermore, I wish to say that I cannot see why the teaching of industrial drawing should be claimed as the "Philadelphia system," when it has been practised for about a dozen years in many cities, and in substantially the same way.

Dr. WARREN thought that the law might sometimes be broken in reference to the employment of children under ten. He supposed Mr. Leland meant by "Philadelphia system" a combination of various things which others have taught singly.

Dr. TAPPAN wished to inquire as to what branches should precede instruction in decorative art and mechanics.

Mr. RICHARDS thought the writers of the reports read had a correct idea as to what should precede industrial training. Decorative training, he said, should begin with the child as he begins his alphabet and should be continued until he is fitted for some specific employment in life.

He said: It is not a necessity that the child should be trained to a trade in school, and whether I would carry it as far as they do in the Boston schools, I am seriously in doubt. I would, however, have arrangements

so made that every child should understand the language of the arts of common life. I believe the time is coming when there will be an industrial department in every well organized system of public schools. The employment of the intellectual training should alternate with the physical training. I would not train a child to become a carpenter or shoemaker, but I would make him familiar with the language of these employments.

Mr. MAYO declared that all he had ever heard in regard to industrial training had been in connection with city schools. The experiment in Boston cost \$20 for each scholar. Now, can any gentleman tell us of any experiment that amounts to anything that has ever been tried in the ordinary country district school? Is this thing practicable?

Mr. MARBLE replied that this question was like that asked by the colored man, who, when told that God made man in his own image and stood him up against the fence to dry, inquired, "Who made that fence?" This question overthrows the whole system of industrial education. Mr. Marble expressed himself as anxiously looking for light on industrial training. He deprecated the idea that the schools are responsible for the after life of the pupils. The parents ought to bear some of the responsibility.

Mr. PICKETT thought that education meant the harmonious development of head and heart and hand. It is impracticable to carry out the work of industrial education, even in city schools; in country schools it is entirely impossible. The school, in his opinion, is assuming too much; it is taking too large a share of the responsibility of the parents.

Mr. RICHARDS understood that it was the part of the school to do what could not be done by the parents. A revolution of normal schools is what is needed.

Mr. JONES stated that the Pennsylvania Railroad Company in hiring a boy wished to know whether he was a good *mechanic*. The railroad company understands its business; the world needs *mechanics*, not mere workmen.

THE EDUCATIONAL LESSONS OF THE CENSUS.

WM. T. HARRIS, LL. D., of Concord, Mass., then read the following paper:

It was my task on a former occasion to lay before this honored association of school superintendents some suggestions as to the educational uses of the census, and also the need of some changes in the schedules of the existing census tables. For the purpose of studying political and national affairs we found that the items regarding race, nativity, military age, voting age, and total population were most important. For the purpose of studying the social condition of the people we had the items of wealth and pauperism, sex and ages by nationalities, occupations, deaths, diseases, public indebtedness, crops, machines, produc-

tious, months of birth of the population, also items relating to the insane, deaf, blind, and other unfortunates.

For the study of education we had the items of schools and teachers, illiteracy, pupils, libraries, newspapers and periodicals, churches, the number of children of school age and their enrolment and actual attendance on the schools. The immense improvement in the methods of preparing the national census for 1870 led us to hope that the same enlightened supervision after ten years of experience would produce even better results, if the recommendations and arrangements of the director of the census were seconded and supported by Congress.

In so far as the results of this new census for 1880 have been given to the public, our anticipations have been fully realized. It is only to be regretted that an unwise reduction of the corps of laborers engaged in tabulating the results of this census has kept back from the people for so long a period the full use of the results of this most reliable and minute of all our national censuses.

It is unnecessary to speak at length of the importance of self knowledge on the part of the individual or on the part of society or the state. It is evident that the wise direction of the state depends on a statesmanship that possesses accurate knowledge of the social condition of its people and understands the measures necessary to "promote the general prosperity and secure the blessings of freedom."

Social reform, too, is conditioned by accurate knowledge of the statistics of production and consumption, or of uses and abuses, evils and benefits, that may be itemized in the economy of the community.

From our point of view as educators, nearly every item in the census has a significance because acting or reacting on the people as an educational influence.

Let us look for one moment at the most general item, that of the aggregate population of the country—fifty millions and more. Ten years previous it had been less than forty millions and twenty years previous it had been about thirty millions.

We all know that there is a subtle and unobserved educational influence proceeding from the consciousness of nationality. To belong to a weak and despised nation is to submit to a perpetual training in humility and loss of self respect. A great blight settles down on the character of the individual like a foul, mephitic vapor, and prevents healthy growth. It was great to be a Roman citizen in the times of the Cæsars. It meant that the individual walked about clothed with an invisible garment of protection. The might of the greatest nation, the conqueror of the world, shielded its humblest citizen.

In modern times what a well-spring of character to the man is the consciousness that he is an Englishman. Eight hundred years of victorious national growth strengthen the backbone of each Briton. To belong to the nation whose flag is saluted by a perpetual morning sun

around the world is an education in self respect, manliness, honor, virtue, and productive activity hardly to be estimated.

Up to 1860 the United States had not reached the standard of a first class power among nations. Each of the "five great powers" in Europe was larger. Our civil war came just then, and it seemed to all Europe, to our friends as well as our enemies, that our doom had come and that no constitution like our own could survive civil war. Before we had come to be respected for our national might, we were to be divided and rendered less and less formidable.

When, in 1870, we reached thirty-eight millions of people, after emerging from a decade one-half of which was occupied with destructive civil war, burdened with an enormous debt and still more by the uncertainty of the problem of reconstruction, our aspect was still too problematic to secure for us a recognition among the statesmen and historians in Europe. As a nation we are affected by foreign opinion perhaps less than other countries because of our distance and because of our consciousness of having a special national function and destiny different from those of European states. But the recognition that has begun to be accorded us by the nations abroad will awaken a new regard for foreign opinion and prove a great educative influence on us through the increased intercommunication by travellers, by commerce, and especially by literature, which describes our national manners as seen from the point of view of England, or France, or Germany.

In a peculiar sense this is the age of the newspaper, and every morning each man and woman living in a civilized community is supposed to take a bird's-eye view of his whole country, and, more than this, of the whole world that is reached by the telegraph. The nations that are far down in the scale of progressive humanity are coming to the gaze of the civilized world as a totality. The most wonderful thing is that they are also coming to feel the influence of public opinion.

The veil of distance has been lifted and each people finds itself playing its part on the open stage before the world as spectator. It cannot do what it will, but it must do what alone will be permitted by the opinion of the world that looks on.

This is national education in the largest sense, for it is the education of whole nations of people by whole nations of people.

In this sense the American people are entering upon an era of national education, in which the decennial census forms a very important agent.

With the growth to fifty millions the United States for the first time rises distinctly above the national horizon as a great world power. The rate of increase will give sixty-five to seventy millions in 1890 and ninety to one hundred millions in 1900. We cannot easily realize the meaning of these census figures. Their chief significance lies in the new career that opens up to our people as a world power instead of a local power limited to this hemisphere. Our most adventurous Fourth of July

orators have not been able to paint for us the national feeling that will be developed through our recognition in Europe. It is the English thinkers who have first seen the coming influence of the United States and of other English speaking peoples on this planet.

Startled by the phenomena of the decade of 1860-1870 they have come to study America seriously and more seriously. They have seen a gigantic war lasting nearly five years in a republic where the central power seemed a shadow and the local power everything; after an unparalleled display of centralized strength, the restoration of local self government complete; spurious reconstruction followed by genuine reconstruction; a new South rising out of the old, not like some fabulous phoenix, but with the more real agencies of the steam engine, the railroad, the telegraph, and the powers of productive industry, and fortifying its new social position by means of the school, making greater efforts than any country ever made before in this matter of schools. The European spectator sees an enormous debt funded and refunded and constantly decreasing, not by repudiation but by constant payment in specie. He sees the volume of paper money contracted and the resumption of specie payments. He sees the wonderful presidential settlement of "eight to seven," and the coolness and patience of the American people under established legal forms. Then he looks again at an increase of twelve millions in ten years, reaching an aggregate of fifty millions of people, the next nation to Russia in point of population, and all these people speaking English and living under a modified British constitution that realizes local self government here far more perfectly than it is realized in England itself.

No wonder that the far-seeing thinkers of Great Britain are looking forward and casting up accounts, anticipating our census and calling the attention of their young men representing the aristocracy and wealth of the island to the meaning of the growth of British colonization in America. Napoleon's career at the beginning of the century and Bismarck's towards the close of it, says a university professor, will seem very insignificant to the historian who looks back from the next century and calls attention to the quiet, unnoticed growth of the United States in the first half of this.

He sees that our nation may then have three hundred millions of people, as many as all Europe, perhaps. We have a government in the form of local self government that allows the individual to manage all affairs that concern himself alone, but insists that he shall constitute with his neighbors a joint directorship over affairs that are common to them. His will must submit to the general will in all matters of common weal. The numerous steps and stages—the school district, the township, the county, the State, the nation—ascend from the individual to the political summit.

This means freedom to all and to each. Those who are really concerned in the business manage it, whether it be single individuals or

small communities or large communities. Hence, while Europe sees American influence rising above the horizon as a world power, this does not forebode evil, as the increase of Russian power portends an invasion of her neighbors by the Cossack. Even England and France might become parts of the United States and preserve all control of what concerns only themselves. And as for common interests between nations, do we not see and do they not see that the day will soon come when such interests must and will be managed by international commissions?

This is the interest of our census in its most obvious feature: its interest first to us and secondly to the world and thirdly to us again because it interests the world. It is the education it brings to each and every American who lives in the consciousness of this mighty destiny before the whole world. It is a training in dignity, self control, humanity, earnestness, simplicity. You could tell a Roman of the empire by this; so a Briton of the present; so a Spaniard of the time of Charles V; so a Frenchman of the time of Napoleon; so a Prussian of the Bismarck régime.

— Three-fourths of a million immigrants come here annually. A better educated class come here than formerly. The facts of our census arouse the attention of the more intelligent inhabitants of Europe and induce them to try their fortune with us.

Turning from these considerations of the educational influence of the growth of the nation as a nation, let us contemplate for a moment the side of civil society, and recount to ourselves the meaning of the enormous sum of the productive industry of the country. The production of wealth appears to be the absorbing occupation of our people. Comparatively few seek the fields of scholarship or the fine arts or statesmanship. The growth of great corporations demands the most and the best of the great directive power that is developed here. Let us study for a moment this creation of property and the relation of its acquirement and preservation to education and the higher spiritual life of man.

It is clear that all the bodily wants of man, food, clothing, and shelter, depending as they do upon the ownership of property for their satisfaction, are through this means elevated and spiritualized, because property is a result of the institution of society. For property is not the creation of the individual; mere possession does not suffice; it is the recognition of society that makes *things* become *property*. Civil society establishes rights of property and division of labor. Through this each man is required to labor for his fellow men and to depend upon their labor to supply him the articles of food, clothing, and shelter which his own labor does not produce. His bodily wants are no longer mere immediate impulses, as animal wants, but they are converted into the instruments of realizing his spiritual or reflected being; he is forced by hunger and cold to combine with his fellow men and to form a community in which he is to respect their recognition far more than his own animal impulses and desires.

Thus, too, the institution of the family lifts man above mere sexual passion, and makes him in that respect a reflected being, a rational being.

Civil society is organized for the realization of man's existence as a property owner, so that he shall be a universal or rational essence, and not a mere individual animal, dependent on his mere locality and the season of the year and his unaided might for his physical life. For when man becomes a property owner and enters into this social combination of productive industry he does not lose himself but rather finds himself. He adds to himself the gigantic system of the industry of the whole world just as really as if he were absolute monarch over it and all mankind stood ready to fetch and carry at his bidding. Indeed the reality is more wonderful than the story as told in the Arabian Nights. The conception of Aladdin and his wonderful lamp, of Houssain and his magic carpet, and of Ali with his magic tube was the first dream of the wonderful organization of mankind into civil society. By its potency the humblest individual lives in communication with all the rest of mankind. The products of their labor are coming to him in a constantly flowing stream from the ends of the earth; he is in constant communication with all mankind and hears of their deeds, their joys, and their sorrows, and cannot but profit by this communication and grow wiser by what he reads in his daily newspaper. The institution of private property made transferable and exchangeable by means of the device called money makes each man a central focus of dominion:

For him the winds do blow,
The earth doth rest, heaven move, and fountains flow.
Nothing he sees but means his good,
As his delight or as his treasure;
The whole is either his cupboard of food
Or cabinet of pleasure.

Each man, by the simple process of industry and becoming a producer, puts into the market and storehouse of productive industry his little mite of a day's labor and thus gains the right to draw out from that market a portion of each of the products that all the countries of the world have contributed to it.

Note, especially, that the contribution of each bears no proportion to the blessing that he receives in return. As Aladdin had to rub his lamp in order to call up its genius, the slave of the lamp, so, too, the lamp of human industry must be kept bright by the toil of the individual, and then all is provided.

The service performed by the combined labors of all men is a service infinitely more considerate and thoughtful than the service of the slave of the lamp or the slave of the ring, in the Arabian tale. That service did only what was desired and commanded by the individual Aladdin; but the service of the industry of the world does ten thousand things

for his true good and his possible wants that the individual cannot think of or understand.

The individual needs to be educated in order to learn to perceive what servants wait on him and what priceless gifts stand ready for his hand.

This is the miracle, that the whole of society is the slave of the ring that serves each individual. For is not social combination in a world of productive industry and commerce a gigantic ring of human beings? And does not each single individual in that ring find that he is enriched by all the labors of all the human beings in that ring, so far as those labors are labors of production and exchange?

Through civil society each individual commands by his own feeble efforts the resources of the entire globe. The organization of civil society is so perfect that every day's labor of the wheat grower affects the price of wheat all over the world. Every day's labor in the mills of Lowell or Lawrence affects the price of cotton cloth in Australia. The day laborer in the streets of this city commands with his meagre wages to that extent a share in the coffee of the distant Indies, the sugar of Louisiana, the tea of China, the drugs of South America, the fruits and grains, the manufactures from all sections of the country.

The fact that conscious intelligence—directive power—controls the property of the world is too obvious to need restatement. I call property a "reflected being" because it exists only through the recognition of society. *Things* exist, it is true, without such recognition, but things do not become *property* until society confirms the right of ownership. Such recognition is always an act of directive intelligence. There are no rights of property where the possession and use of things depend on the will of the strongest individual. Rights of property arise only with the growth of insight into the supremacy of the social whole as organized in the state. Man must see that society is stronger than the individual and learn to obey the will of this invisible body and to renounce the temptation to substitute his might for right before property can really come to exist in a community. The laws that create and preserve property state the nature or constitution of the bonds that hold society together. They state the principles on which man shall contribute to his fellow men and be permitted to share in their labors. Such distinctions as the laws of property set up contravene the immediate desires and wishes of the individual and demand of him the constant effort of self control. He must acquire a reflected will, that is to say, a will that is bent back upon itself in order to regulate its own action according to universal principles called "laws."

A thing is an immediate existence; but a piece of property is a thing that has become subject to my will through the recognition of society. Society acknowledges and respects the sway of my will over those things that constitute my property. Hence property is not a thing nor a direct product of my will, but the product of my will only as reflected

in the will of the social whole existing in the form of a political body, the state.

It is clear enough that the rights of property cannot exist except in a community whose directive power has adopted a code of laws and legal usages defining such rights of property, and only where there exists a class of the community specially educated to interpret the application of those laws to particular instances and enforce their application on the part of the state or guide the individual by professional legal advice. It demands, too, the education of the law making power. Under all there must be the generally diffused insight of the people into the necessity of the support of the power of the social whole against the might of particular individuals or classes of individuals.

This insight into the necessity of the political organization of society is an insight that belongs to what I call "directive intelligence," because it can be realized only through the control and direction of the mere individual will, requiring it to renounce its inclinations, wishes, and whims so far as they are not compatible with the existence of social combination. The rights of property can be conserved only through an educated class.

The higher kinds of property, such as franchises, imply a high intelligence in the community. The property that consists in franchises requires a more thoroughly educated community, because such rights rest on more subtle distinctions than the rights to chattels and real estate. The individual must be so disciplined in mind that he can see readily the connection of his own well-being with the existence of such franchises.

Again, the possibility of possession of property by all in this country adds new validity to it here and makes it more valuable. That you can alienate your real estate, makes it property in a complete sense. If it is entailed it is only part property. The free possession of property, without feudal liens and tenures (the dead hands of the past owners still clutching the symbol of their reflected being), comes to existence only when a government of all the people, for all the people, and by all the people prevails, and when it is rendered possible through universal education. Who would own real estate in Turkey? Who would accept a Russian estate on condition that he live on it and assume its responsibilities? No one of us, I think. The quality of property—its intrinsic value—depends upon the quality of the community who recognize it. The status of the reflected being is the status of those who reflect it. Property in a refined and cultivated community is raised to a high potency of value; in a barbarous community it is not worth the risks incidental to its possession. In proportion as a man is educated he sees the substantial character of reflected existence, and this perception creates continually new subjects of property, founded on new recognition: bodiless possessions, "incorporeal hereditaments," that receive their substance from conventional recognition.

The growth of corporations is the wonder of this generation. They perform what the individual never could do for himself, and yet needs to have done in order that he may become freed from the thralldom of nature. The individual could not afford to build an aqueduct to obtain pure water from the distant hills, or establish gas works, or own a railroad or a telegraph or express system. Corporations furnish him all these things. If corporations abuse their power sometimes, this is because society has not yet learned where to place legal restrictions upon them and is another illustration of the necessity of education in the community.

This general relation of education to wealth production brings us close to the question of so-called industrial schools: manual training schools, school shops, and the like. It is clear enough that such schools are in demand and have a legitimate function to perform. But it is not so clear that they should be incorporated with common school education or in any way encroach on the time-honored disciplines of the common school, i. e., reading, writing, arithmetic, geography, grammar, &c., or indeed take the place of anything that can be called general instruction.

Let us see what the census teaches us in regard to the proportions of the population engaged in the particular arts and trades. We shall then see whether such industrial instruction can be made general enough to answer the future needs of any considerable fraction of the pupils in school.

If each of the five hundred arts, trades, or occupations in the community required a special school for the preparation of its laborers and had no manual and technical disciplines in common with the other occupations it is clear enough that such special industrial education could not be introduced into the common schools.

I have selected for this investigation nine cities differing greatly in respect of manufactures, commerce, and professional and personal service. They are New York, Philadelphia, Brooklyn, Chicago, Boston, St. Louis, Cincinnati, New Orleans, and Baltimore.

It is evident that the inhabitants of cities will present us a larger proportion of laborers at the arts and trades than the country population. In the cities, if anywhere, it would be desirable to establish industrial education in the common schools.

According to the census of this country for 1870—I use the statistics of 1870 because the returns are complete—there were 350,556 persons above the age of ten years in the city of New York who were reported as laboring in some occupation. Of these 86,171 are reported as females. Of the entire number there were 1,401 engaged in agriculture and 115,259 in professional and personal services, the last being one-third. Personal services included 49,440 as domestic servants, 28,451 as mere laborers, 4,832 as in hotels and restaurants, 5,604 in laundries, 1,278 in livery stables, 1,535 in boarding houses, 2,549 barbers and hair-dressers, 42 billiard saloon keepers—93,731 in all. Professional services included

715 clergymen, 316 journalists, 1,283 lawyers, 4,222 in Government offices, 1,741 physicians and surgeons, 669 soldiers, 3,511 teachers—12,457 in all. There were 9,071 others engaged in personal or professional services not specifically designated.

When we consider the various occupations named above, under which one-third of all the laboring population of New York are classified, we see that there could be no special training school added to the common schools that would fit each pupil for his particular vocation, if one of these.

By far the largest number in any single occupation are classed as domestic servants, and these form one-seventh part of the entire number of laborers.

The general discipline of the hand and eye that is given in the study of free hand drawing in our common schools would be of great service to nine-tenths of these laborers. Still more valuable would be to all the training of the Kindergarten occupations at the early age when the muscles are not yet formed and fixed. The one occupation of moulding from clay would be useful to all cooks and to all who have to do with giving shape to plastic material.

The census reported 88,611 as engaged in trade and transportation, one-fourth of all the laborers. Of these, 23,872 were traders and dealers, 4,744 were hucksters, pedlers, &c., 27,590 were clerks, salesmen, &c., 3,355 were bankers, brokers, insurance men, &c.—59,561 total in trade. Of those in transportation, 3,844 were engaged by railroads and express companies, 298 by telegraph companies, 4,463 were sailors, &c., 9,813 draymen, teamsters, &c.—18,418 in all. Of those engaged in trade and transportation, 10,632 were not more specifically classified.

Here, too, we see that the general industrial education fitted for all is a knowledge of arithmetic, reading, and writing, and not some species of manual skill.

The number engaged in professional and personal services, added to those engaged in trade and transportation, gives us nearly three-fifths of the whole industrial population of New York. The number engaged in manufacturing and the arts is reported at 145,285, or the remaining two-fifths of the industrial population. Of these, 3,533 were blacksmiths, 2,296 were iron and steel workers, 3,787 were machinists, 1,562 were tinnors. Here we see 11,178 whose occupations have something in common, namely, the working with iron and steel or hardware in some shape. The use of the hammer and the file would be useful to all these; but they form only three in one hundred of the entire industrial population. In a school of one thousand they would make a class of thirty-two pupils. If more than thirty-two pupils were attracted into this class from a school of a thousand, it would be likely to produce discontented laborers, who were not needed because their trade was overstocked with workmen.

Taking another general class of manufacturing we find 10,427 carpen-

ters, 5,071 cabinet makers, 686 carriage makers, 1,606 coopers—17,790 workers in wood. The use of the file would not be specially useful to these. The use of the hammer would be necessary to all, but a very different knack in its use would be required. The use of the hammer on iron and steel would be likely to specially unfit one for the best use of it on wood. But these woodworkers could all learn the use of wood cutting tools: the saw, the adze, the chisel, &c. But a class of only fifty could be formed in a school of one thousand pupils, even if the whole school were destined to some industrial occupation.

Next we find 1,477 cotton and woollen mill operatives, 9,747 milliners, 18,564 tailors, 29,788 who should know something about the manufacture of cloth and most of whom should know how to sew. About 75 in a school of 1,000 would enter a class that should know the specialties of the tailor and milliner. Probably 500 of such a school should know how to sew. We find 6,960 shoemakers, 3,855 bakers, 4,870 butchers, 5,824 painters, 8,018 masons and plasterers. The common element of skill among these trades is a very general one, such as we call discipline of the hand to delicate manipulation and of the eye to accuracy of measurement. Such training is given in the study of freehand drawing and in the so-called "gifts and occupations" of the Kindergarten.

In the other eight cities the proportion of the industrial population engaged in professional and personal services ranges from a little less than one-third, as in Philadelphia, to nearly one-half, as in New Orleans. The population engaged in trade and transportation ranges from less than one-fifth in Philadelphia to more than one-fourth in Chicago. In manufactures, arts, and trades the number ranges from one-fourth in New Orleans to one-half in Philadelphia.

These exhibits show from 30 to 40 per cent. of the population counted as industrial population. The population over ten years of age is about 75 per cent. of the whole population.

These lessons show us how wild are the theories of those who declaim against the present course of study in the common schools and demand the introduction of the arts and trades instead of the general disciplines that are now taught.

To meet the wants of the age, as these reformers understand them, they should ask for the curtailment of the school period and the apprenticeship of children to trades. Such apprenticeship is not likely to be undertaken by the state so long as the present ideas of personal freedom prevail in this country.

That the state may require a general education in science and letters and a training in secular morality is reasonable enough, but it cannot choose the vocation of the citizen for him without attempting more than any state has done since the petty tyrannies of India ceased to exist.

Special industrial schools may be established at the expense of the state, such as are called school shops and polytechnic schools, and doubtless they will do much good.

They will prepare a set of master workmen who will be able not only to direct the labor of the journeymen mechanics, but also teach them the best methods of manipulation. Such superintendent workmen will be doubly valuable to the community: first, securing better work; secondly, educating the workmen.

Within the past twenty-five years great strides have been taken by European governments in establishing systems of public education. It has been seen clearly that unless the laborer were educated the industrial product would be inferior and come to be discriminated against in the markets of the world. Technical education thus began at South Kensington for England, as it had been before established in France and Germany. The foresight of Frederick the Great, backed by the religious dogmas of Luther, secured general education to his people. The weight of the Prussian people in war came to be seen in their Austrian and French campaigns. Since these wars public education has received an enormous impulse. Not merely the industrial success of the people, but national independence itself seems dependent on the general education of the people.

But man will not submit to be educated simply as a director of machines and instrumentalities of industry. He soon aspires to direct himself and be self governed. To be sure there is a long step from the mere hand laborer, the one who turns a crank or carries a hod, the galley slave who works chained to his oar—there is a long step from the mere physical laborer to the director of a machine, to the engineer, to the overseer of a loom, or the manager of a telegraph. The former is all hands; his own brain even is a mere hand governed by the brain of another, who directs him. But when directive power develops so far as to direct and govern machine labor, nay, even when it is so far cultured as to reach the principles of natural science and to be capable of applying these in mechanic inventions, even then it is not at its summit of realization. It will stop at nothing short of the spiritual culture that makes it alike directive and governing in the sphere of mind, the realm of social, moral, and intellectual existence.

It is agreed that this age is one of productive industry. Its active principle is invention, especially mechanic invention. Every day we hear of some new discovery that harnesses a new force of nature and compels it to work for man and assist in providing means of food, clothing, and shelter, or means of intercommunication and the spread of knowledge. Mind, not the body, is the inventive power; the directive power that can manage and use machines to advantage is mental, and not physical skill. The growth of invention is so rapid that the increase of manufacturing power by the aid of machinery is said to double, for all the world, once in seven years. The multiplication of steam engines and the improvement of machines renders this possible. What unintelligent hand labor is there that has any certainty of being in demand ten years hence? More than this, what trade is there that can count

on using, ten years hence, just the kind of technical skill that it requires now?

The history of the present era of industries shows a continual shifting of vocations, no vocation having any long lease of life. The new discovery will make the trade learned to-day, after a long and tedious apprenticeship, useless to-morrow. Any peculiar knack which depends on manual dexterity may be rendered valueless by a new application of machinery. The practical education, therefore, is not an education of the hand to skill, but of the brain to directive intelligence. The educated man can learn to direct a new machine in three weeks, while it requires three years to learn a new manual trade. The hand trained for twenty years at one kind of labor cannot learn a new work requiring different skill, because the muscles have become set and stiffened into one form of action. An uneducated workman will be thrown aside to perish in an almshouse. Only the versatile intelligence is able to meet the demands of the age of productive industry.

We are to find the most practical education for our age, then, in the general education that is and has been furnished in our schools. The branches of the course of study include language studies and studies of nature with a view to fit the pupil for combination with his fellow men and for ability to command the forces of nature. Mathematics gives the individual man control over nature, and the study of reading and writing gives him access to the wisdom of the race and ability to communicate himself to his fellow men and receive their advice. These general studies are, moreover, essential in our day to the preparation of citizens who shall support and defend the established order and not conspire for its overthrow.

All the studies of the common school are conservative in their character, because they all open the windows of the soul and give the mind insight into the substantial character of the institutions of civilization. They all tend to produce the conviction that the well-being of man is best furthered through the very instrumentalities that have been discovered and elaborated by the race, and especially by modern civilization. Reading, writing, arithmetic, geography, history, and grammar all open the soul to light on the question of subduing nature or on the question of the character and destiny of the human mind as revealed in language or social usages or political forms and changes.

The good school, moreover, teaches industry effectually. But its industry is that of directive intelligence. The progress of civilization supplies more and more the machinery to perform menial service and makes it necessary to educate all into directive intelligence. Self-directive intelligence makes for itself avenues of employment. Directive power is the only power that is never wasted.

It is not surprising that our people educated in common schools are versatile and industrious. Indeed it is the most valid criticism that we hear, the general criticism that the American people overwork. Their

ever active intelligence sees too many opportunities in the presence of this half-settled and half-civilized New World, and the consequence is premature old age on account of an unbroken career of toil.

There is too little leisure from the rough work of pioneering to produce finished scholarship. But education, as far as it goes, disciplines the mind and fits it to understand the complicated questions which it meets in a new political experiment. But there is not enough of this general education for the real needs of the age. Every citizen ought to be able to read and write and to know enough geography, grammar, and history to understand the daily newspaper. At least so much as this is essential to the voter in a free republic.

But here we come upon the most unpleasant and unwelcome data that our census furnishes. The census of our country for 1870 said: Of the population over ten years of age, 5,658,144 cannot write; 4,880,271 of these are native born and 777,873 are of foreign birth; 2,789,689 of these illiterates are colored. The total population of the nation over ten years of age was 28,228,945. Hence, 20 per cent. of the population over ten years of age could not write in 1870. In Massachusetts, even, there were 97,742 who could not write, 89,830 of these being of foreign birth and only 7,912 being natives. Eight thousand is a large number for a State like Massachusetts. Twenty-three thousand illiterates were in Boston.

The census of 1880 tells us again that there are 6,239,958 persons unable to write out of a total population of 36,761,607 persons of ten years of age and upwards.

We have permitted universal suffrage, and the Government is made by the majority. If we do not have universal education, we shall all suffer for it; for we are tethered to the lowest stratum of our population and must accept their influence in our politics. Nothing but education will ameliorate it.

The lover of his kind rejoices in the knowledge that here in America we have so organized our society that the welfare of the highest is connected indissolubly with that of the lowest, so that each and all must, in the main, see clearly that he is his brother's keeper and realize the solidarity of the social whole. Each man is what he is, not through himself alone, but by and through the reflection thrown back upon him from the social whole in which he lives and has his being. Under monarchies and despotisms the same fact is also true, but there is such a mirage created by the principle of caste that it cannot be seen clearly except by deep thinkers. Here it is visible, for the common laborer is also a voter and participates in making the laws of a free government.

The critics of our educational system are never done with telling us that its results are to make the rising generation discontented with its lot. As if this were a defect instead of the crowning glory of the system! What place is there in this age for a drone who is void of aspiration? To be like dumb driven cattle—this is not to be permitted

in a Christian civilization. Man is immortal and has an infinite destiny: this is the burden of Christian teaching. In consequence of this, Christian civilization strives towards the heavens; it subdues nature and makes natural forces toil for it and procure food, clothing, and shelter for the body. It continually turns out the drudge from his vocation, and says to him: "I do not want your mere bodily toil at any price; I must have brain labor joined to hand labor. I have machines made of wood and iron that can do such work as the like of you can, and at a far less price than you would call starvation wages. Up, then, and acquire directive intelligence, so that you may manage and direct this machine and other machines, for presently we shall need no more mere hand labor, but require all to be intelligent and directive."

As made in the image of God and as destined for His eternal kingdom, is it possible that any education that schools may give is too high for the position to which a human being is called to occupy in life? In view of the necessity for educated directive power in an age of productive industry in which the superintendence of machines is the chief industrial business, is a general education that gives one insight into nature and insight into the human mind too much? In a representative democracy, in which the laws that govern property and personal rights are made by the representatives elected by all the people, including the humblest citizens of the country, is any education too good for the people?

The American answer to this question is No!

Dr. HENRY RANDALL WAITE, having been called upon to speak, said:

Education is intended to fit men for success, not only as bread winners, but in the fulfilling of the parts assigned them in the economy of society as factors for the accomplishing of whatever in their places as component parts of the social organism their special aptitudes and inclinations best fit them for doing. The address to which we have just listened calls special attention to the truth that in order to succeed in the pursuits and callings of the individual, one of the chief essentials is a knowledge of the relations, one to another, of the facts bearing upon these pursuits and callings. In connection with the lessons deduced from statistics by Dr. Harris, I recall as pertinent the remark recently made to me by one of the most prominent and successful of Boston publishers, that he attributed his success to the efforts made throughout his business career to utilize the laws of nature by making them adjuncts for the accomplishment of his purposes. This successful attempt in the application of sound philosophy to the management of business affairs illustrates the results which may obtain in larger degree if the lessons deducible from facts bearing upon the affairs which concern men in all the important relations of life can be made more generally accessible and shall be more commonly studied. If, as indicated, the chief object which engages or ought to engage the atten-

tion of educators and students alike is the means which will most certainly enable men to grow into whatever place in the social organism they are, all things considered, best fitted to fill, education from its earliest beginnings should include proper attention to whatever will in any way cast light upon the various pathways open to the choice of the youth in our schools. It is the opportunity for the study of facts in their various relations as presented in statistical form which gives to statistics their chief value; and as facts thus collated enable us to arrive at conclusions which are shown to be of the utmost importance as affecting the future interests of the young, such facts may well be regarded as worthy of the most painstaking study. The results of such studies, as presented by Dr. Harris in his summary of some of the lessons taught by the figures of the last census, should therefore be especially welcomed because of their important educational influence. It may be too much to hope, and still we may indulge the expectation, that when the great value of such studies is more fully appreciated opportunities will be in some manner afforded to the youth in our schools for entering upon them. The natural laws which govern human affairs in respect of education will, in the near future, I trust, be as well classified and understood as those which relate to political economy. A study of these laws as applied to the important question of industrial training, which has been engaging our attention this morning, would cast much light upon that subject.

Industrial education seems to me to be merely the amplification and perfection of the system of object teaching. It takes from the latter that which was abstract and theoretical and gives to it, as applied to the useful arts, a practical bearing. When the question of such education is under discussion and we ask what part in it the artistic and decorative shall have as compared with manual labor of a grosser sort, it may be well to inquire as to the proper relations of the triune functions of man, the head, the hand, and the heart (so eloquently referred to by Mr. Pickett), the natural order of sequence in which these exercise their functions, and as to the relation which the various steps in industrial education bear to this sequence. If in the order of nature's laws we find that observation through the eye precedes the knowledge acquired by the sense of touch or hand manipulation, will not this aid us in the orderly arrangement of the various steps to be taken in industrial training? Again, by the careful study of the facts which acquaint us with the natural laws (to ignore or to disregard which will result in the failure of our best efforts), we may, I think, solve the two most important problems connected with this question in its practical bearings: first, under what circumstances industrial education may be profitably employed, and, secondly, circumstances being favorable, how to employ it to the best advantage.

It has been said that the methods contemplated by such a system cannot be made universally applicable. Assuredly, conditions in city

and country, as remarked, are so widely different as to make it evident that the rules applicable in the one case will be applied less easily or not at all in the other. A careful inquiry into these conditions should certainly precede attempts to introduce a system whose usefulness and value may be imperfectly appreciated and greatly underestimated as the result of hasty and unwarranted conclusions on the part of its friends. Statistics, generally regarded as a dry subject, and possessing little interest, in so far as their study can be made plainly contributory to the solution of the important social problems which are more and more engaging the attention of intelligent men, will receive the attention due them; and, as men turn more and more to the study of what we have been accustomed to hear spoken of as "dry figures" because they find that such studies pour floods of light upon the vital problems which chiefly concern them, figures will have a new meaning.

Mr. RICHARDS. I would like to ask Dr. Harris a question. Why is it that only one in fifty of the children that are in the courses of education in our country are in the higher grades?

Dr. HARRIS said in reply:

I believe, of course, that primary instruction may be improved, but I do not attribute the fact that there are so few in the higher grades to the want of good instruction in the lower grades, as Mr. Richards seems to do.

The average attendance on the school is perhaps not more than three years (of ten months each) all told, say thirty months' schooling, on an average, to all our people. The reasons for this are obvious enough. First, there is the poverty of the people, real or imaginary. The parents of the class of manual laborers are content if they give their children the ability to read and write and the mastery of the simplest rules of arithmetic. So much is "a great deal more than *they* received."

Then, secondly, there is the stimulant of opportunity in this country. What country was there ever before that offered such chances to the individual to get wealth? The youth catches the gold fever or the emigration fever, and quits the school for active labor.

It is not quite so bad as it seems, for the youth who can read and will read may become a learned man before old age, through the blessings of cheap books and periodicals, and above all the daily newspaper, which is our greatest popular educator next after the common school. The pupil learns how to read at school, and he graduates from that preparation into the American university: the newspaper and public library.

I find myself unexpectedly bringing my paper into the midst of a debate on industrial education. I would like to say on this point that the great fact that meets the student of modern civil society is the fact of the change of vocations rendered necessary by the invention of machines. No laborer can be very sure that his trade will be good for a livelihood for many years to come. This development of inventive

power is due beyond question to the study of natural science and the increased devotion of specialists to the observation of the phenomena of physical processes. This study of nature, again, if we are to follow up our explanation of the peculiarity of our historic period, must be considered as due to the development of the Christian idea of the world. So long as nature was looked upon as a mere illusory appearance or "maya," as the East Indians called it, there would not arise the conception of the possibility of finding rational laws in it. So, too, the conception of the Greek mind, that nature is the manifestation of individual divinities concealed behind it, would not permit the observer to entertain the thought that nature is a consistent manifestation of reason. But the Greek philosophers broke away from superstition and arrived at the idea of the world as a Cosmos, a world which, as Plato represented, was made by a Creator entirely without envy and moved only by the desire to impart to it all His perfections.

The Christian religion taught that the world was a revelation of God. Accordingly, as soon as the weightier questions of the struggle for existence against the northern and eastern barbarians were settled in its favor, there arose a wonderful passion for the study of nature in one or another form. At first it was the era of geographical discoveries, then the era of separation of the secular from the dominion of the church. In itself this separation of the state from the church is the proclamation that nature shall have validity as a peer to the spiritual whenever it assumes the form of harmony with it. The state has assumed the form of the dispenser of justice, and justice being a divine attribute it harmonizes with the principle of the church, and the state may become independent of it, inasmuch as it has adopted a principle recognized by the church and now no longer needs ecclesiastical supervision. The secular emancipation is brought about by the Christian principle which teaches the divinity of men and places infinite responsibility on the individual.

Science will emancipate man from thralldom to nature through mechanic invention. First, there came the age of simple inventions, clumsy machines being invented to perform the movements that the hand had executed in the previous era of division of labor. The age of machinery is the age of synthesis in place of division. After simple machines come those more complex, combining the operations of many simple machines in one. The more complex the machine the more versatile the intelligence required to direct and control it. But the emancipation of the human being is much the greater for it. The productivity is enormously increased in proportion as the human individual is dispensed with for its direction. Food, clothing, and shelter grow cheaper, and each human being can have more of them in exchange for his day's labor.

There are two consequences resulting from this progressive conquest of nature by the aid of mechanic invention. The first is that more educated general intelligence is demanded in the director of the machine.

The second is that the human being gets more and better food; clothing, and shelter, and more leisure for spiritual development, and consequently his child stays longer in school, for the reason that labor demands intellectual preparation and leisure permits such preparation.

Mr. RICHARDS said that more time was needed to educate youth in those higher branches that give directive power.

Mr. LUCKEY thought that the question why there are so few rich people and so many poor ones might be asked with equal propriety. All would be rich if they could and all would educate their children if that were possible. We do not understand this question of industrial education. The schools are managed by poor directors and controllers. Let the children be properly educated in the rudiments, and those who can take advantage of the high school education will do so. The chairman of a French commission remarked in my hearing that the best reading he had heard in his life was in public schools in America. "But of what use is it? In America you devote four times as many hours to teaching children to express themselves as we do, and of what use is it? Are you educating these children to go upon the stage or become lawyers or preachers? Oral expression is not what you want. You wish to teach children to read in order that they may gain information. If you will take 90 per cent. of the time that you give to expression and teach the pupils the meaning of words they will do better." Now, I have observed that children that come to us from England and Scotland and Ireland and Wales can read books that American children of the same age cannot comprehend.

Mr. HITZ concurred in the views expressed that the directive power should be developed, and Mr. Richards emphasized his previous remarks.

The president announced the following committee on national aid to education: M. A. Newell, State superintendent of public instruction, Maryland, chairman; B. G. Northrop, ex-secretary of the State board of education, Connecticut; Atticus G. Haygood, general agent of the John F. Slater fund, Georgia; N. C. Dougherty, superintendent of schools, Peoria, Ill.; J. H. Smart, ex-State superintendent of public instruction, Indiana; Jos. Desha Pickett, State superintendent of public instruction, Kentucky; Joseph White, ex-secretary of the State board of education, Massachusetts; W. T. Harris, St. Louis, Mo.; Andrew J. Rickoff, superintendent of schools, Yonkers, N. Y.; Eli T. Tappan, president of Kenyon College, Gambier, Ohio; Geo. J. Luckey, superintendent of schools, Pittsburgh, Pa.; C. C. Painter, Nashville, Tenn.; S. C. Armstrong, principal of the Normal and Agricultural Institute, Hampton, Va.; B. L. Butcher, State superintendent of free schools, West Virginia; B. G. Lovejoy, member of school board, Washington, D. C.

The department then adjourned to meet at 8 P. M.

THIRD SESSION—WEDNESDAY EVENING.

WASHINGTON, *February 21, 1883.*

The third session of the Department was held in the High School Hall at 8 P. M.

The president introduced ATTICUS G. HAYGOOD, D. D., president of Emory College, Oxford, Ga., and general agent of the John F. Slater fund, who delivered the following address :

IF UNIVERSAL SUFFRAGE, THEN UNIVERSAL EDUCATION.

The records in the Bureau of Education show that in the recent slave States of the Union the total school population in 1881 was 5,814,261. Of these 3,973,676 were white and 1,840,585 were colored children. The school age in these States averages from six to nineteen years. Of the whole number the total school enrolment was 3,034,896. Of this number there were of white children 2,232,337 ; of colored, 802,559. Of the total school population of 5,814,261, 2,779,365 were not enrolled, that is, they were not at school. The whites not enrolled numbered 1,741,339 ; the colored, 1,038,026 ; that is, nearly half the white population of school age and more than half the colored were not enrolled. Of the entire school population 52 per cent. were enrolled, 48 per cent. were not enrolled ; of the whites a fraction over 56 per cent. were enrolled, of the colored a fraction over 47 per cent. In this matter the whites are only a little better off than the negroes.

Upon the schooling of the 3,034,896 enrolled in 1881, these States expended the sum of \$13,359,784, that is, \$4.40 per capita. Of these States all but two or three distribute the school funds without distinction of races. In these States the public school term does not average four months ; in most of the cotton States the average term is three months. When we say that 3,034,896 children were enrolled in 1881 in the late slave States, this does not mean that so many were at school three months. It is doubtful if two-thirds of the whole number were at school during the full term.

Here, for convenience in remembering them, let us come to round numbers for a moment. Allowing for the ordinary increase of population since 1881, it is safe to say the school population of the South is now 6,000,000. Of these 4,000,000 are white and 2,000,000 are colored. Of the 6,000,000 about one-half are enrolled and at school.

What is the case with adults in these States? We may just here consider only the case of the voters, there being, however, more illiterate women than men. The total number of men of voting age in these States, by the late census, is shown to be 4,154,125. Of these, 1,354,974 could neither read nor write, that is, nearly one-third of the whole number of voters are illiterate. Of the white vote 30 per cent. are illiterate ;

of the colored, 70 per cent. In one of these States the illiterate vote is the majority of the whole number.

This is bad enough, but this is far from being the worst of this sad case. The worst is this: The illiterate vote in these States is increasing. From 1870 to 1880 the increase of this army of ignorant voters in the South amounted to 187,671. Leaving out Delaware, the illiterate vote increased in every Southern State. In this downward progress the two races keep well together. The increase of the illiterate white vote was 93,279; of the illiterate negro vote, 94,392. The whites being in the majority, take the South as a whole, the increase of the illiterate vote is relatively greater among the negroes.

Let us give details as to a few of these States. In Georgia the illiterate white voters in 1870 were 21,899; in 1880, 28,571; the illiterate negro voters in Georgia in 1870 were 100,551; in 1880, 116,516. The illiterate white voters in Kentucky in 1870 were 43,826; in 1880, 54,956; the illiterate negro voters in Kentucky in 1870 were 37,889; in 1880, 43,177. In Tennessee, in 1870, the illiterate white voters were 37,713; in 1880, 46,948; the illiterate negro voters in Tennessee in 1870 were 55,938; in 1880, 58,601. In Texas, in 1870, the illiterate white voters were 17,505; in 1880, 33,085; the illiterate negro voters in Texas in 1870 were 47,235; in 1880, 59,669.

If things remain as they are, 1890 will show a further increase of this huge illiterate vote. Things will remain as they are in these matters; rather, they will grow worse, unless the South gets strong help to bear her double load of ignorance and poverty.

We are apt to put a rose color on even such figures as these. A very little ability to read and to write takes one out of the lists of the illiterate in the census tables. The inquiries are not searching; few men are willing to acknowledge that they cannot read. I make no question that many thousands counted out of the illiterate columns can neither read nor write; it is beyond all question that hundreds of thousands who can, in a mechanical way, do both are less qualified by general intelligence to vote than are many who can do neither.

More ability to write one's name and to read coarse print imperfectly is no good proof of fitness to vote. This sort and degree of ability may exist with absolute ignorance of the merits of the issues involved in popular elections.

Let me give a fair specimen, drawn from life. There is not a touch of fancy or burlesque in it. For nearly eight years I have had in my employment a colored man of good character and superior qualities. He is above the average of his race in intelligence; he is about my own age; he can sign his name imperfectly and he can read a little. You will miss the point in my story unless you bear it distinctly in mind that this man, Daniel Martin by name, has voted the Republican ticket every time since he was made a voter, and that he so votes to this day. Let me show how well qualified a man may be to be a voter who can just

write his name and read a store sign. The day before the Hayes and Tilden election Daniel was ploughing in a little field near my house. One of the students asked him: "How are you going to vote to-morrow, Uncle Daniel?" The southern negro never delivers a grave judgment without coming to a full pause in whatever engages him. One consequence is he comes to a great many stops. Moreover, he thinks in metaphor and speaks in parables. So Daniel came to a full stop in his ploughing, and, sticking his plough deep into the ground, delivered himself as follows:

"Now, Mr. Longstreet, you see me plowin' along dis furrow here; if I plow dis furrow all de time, I makes dis furrow too deep and I don't plow de balance of de patch." Longstreet admitted the force of the statement. The philosophic voter continued: "I think things is bin gwine on one way 'long enough; dere ought to be a change. Wharfore I'se gwine to vote for Hayes to-morrow."

The next day he and I went to our county town and voted. He voted for Hayes, that there might "be a change," I voted for Tilden that there might "be a change," and we were equal before the law.

Talk to such a man about the tariff, taxation, the currency! You had as well talk to him about horizontal parallax and spectrum analysis.

There is no question so pressing in the United States to-day as this "What can we do with Daniel Martin in politics, the white Daniel and the black Daniel?"

Every male person twenty-one years old, not an idiot or felon, is a voter. The vote of the most ignorant weighs as much in law as the vote of the wisest. In the South ignorance is really in the majority; practically it amounts to this: Where one man in the South knows what he is doing when he votes, there is at least one man who does not know what he is doing. Sometimes there are two of them.

The votes of ignorance are not in any country—in Massachusetts or South Carolina, in New York or Georgia—determined by intelligent discrimination between men and measures. The best thing that ignorant voters can do is to vote on the judgment of the wisest men. But this is the thing they are least of all likely to do. As a rule, the illiterate voter is not under the guidance of the wisest and best citizens, but of the cunningest and most unscrupulous citizens. It is not your best man who has most power over the illiterate voter; generally it is your worst man. The least dangerous element in the votes of the illiterate is not that their ignorance disqualifies them for a rational judgment, but that it exactly qualifies them to be the tools of bad men.

It is neither exaggeration nor fancy. More than one-half the vote in the South represents just this: The wishes of wirepullers and office-seekers. What determines this huge illiterate vote? (1) In small part, the ad vice of intelligent men; (2) in great part, the management of shrewd men; (3) in large part, bribes in one form or another; (4) in

considerable part, prejudice inevitable to ignorance, whether of white people or of negroes.

What does voting like this signify to republican institutions?

There is another matter of measureless moment to be mentioned just here. Where the majority or even a great part of the voters are illiterate, cheating in elections is as easy as it is certain. The wrong done to the illiterate in such cheating is less than the injury done to those who do the cheating. In the one case, a vote cast by a man who did not know its value is not counted or is miscounted; in the other, a man who does know its value is debauched by corrupt politics.

Denouncing corruption in elections will not give us honest elections; honest elections must at least be made possible by qualifying the electors to vote rationally. There never was one man who knows why he votes, especially if he pays all the taxes, satisfied to be voted down by another man who does not know what he is doing, especially if he pays no taxes. There never were one million of men who know why they vote and who pay the taxes who would long endure to be voted down by another million who do not know what they do in voting and who pay no taxes.

It would be hard to prove that the capable ought to endure being voted down by the incapable. If they do, the ends of government are destroyed. This side the millennium capable men will not, if they can help it, endure such voting down by ignorance. After the millennium there will not be such voting. If capable men are forced to endure such voting they will come to abhor republican institutions. When this feeling is fixed in the hearts of men the foundations are destroyed.

What are we to do with the ugly facts revealed by the inexorable census table?

The treatment of these facts will depend on those to whom their attention is brought. Some men will not think of them at all; disagreeable facts they ignore, because the study of them disturbs their repose. But we do not do away with ugly facts by shutting our eyes to them. It would be as wise to reject vaccination and quarantine when small-pox is epidemic and pacify our anxieties with affidavits that there is no small-pox, or that it is not dangerous, or that it is, upon the whole, rather an advantage, as giving employment to undertakers.

Some among those who control the press of the country are content to publish these ugly and portentous facts as mere "news items." Others, seeing that here is something to arrest attention and to awaken anxieties, are content to lecture the South, telling her for the thousandth time how much behind she is. No efficient remedy this for the evils indicated by the facts. Some are in despair; they have sunk down into the abyss of political pessimism; they say there is no remedy whatever; they have despaired of the republic. With all their railings and wailings and prophesyings these men are not true lovers of their country, else they would not despair so readily.

Others are indifferent; they don't care. They are the favorites of fortune; they are having a good time, making, hoarding, or spending their money. To them the poor and ignorant are nuisances; they rather hate them than otherwise. Of the Government, of our republican institutions, they know little and care less. They have no national feeling in them; they are utterly devoid of patriotism. "They are preserving their game"—talking "imperialism" over their wine. And this class controls a great deal of money. Very careless and indifferent they are; but they have abundant reason to care. The ignorant vote, that holds the balance of power, is a constant menace to the institutions that secure them in the enjoyment of their gold, their bonds, and their palaces. This great black giant of ignorance, many-handed, grim, and desperately hungry sometimes, is digging away at the foundations. So far as money values are concerned, these careless ones have most reason to care.

Some, patriotic enough so far as mere sentiment goes, smile at the apprehensions of the thoughtful student of facts, rely complacently upon what they dream of as the glorious "destiny of the republic." They talk about Providence. There is no blinder folly than faith in Providence that refuses to use the means that Providence appoints for securing gracious results. Providence never yet saved any nation that refused to do what it could do to save itself. Such a nation is not worth saving; such a nation cannot be saved. Salvation of any sort must proceed according to law; there is no saving a man or a nation in violation of law. It would be a violation of law—fundamental and absolute—to save republican institutions by the votes of men who do not know what they are doing. No device of law, no constitutional amendments, no statutes regulating elections, no force of arms, can secure institutions that depend on elections determined by ignorance. In the very nature of things such preservation of republican institutions is impossible.

Some visionaries calm their fears by their confidence in the educating power of the ballot. The ballot has this educating power when placed in the hands of ignorance: it discovers its power to the point of making the best bargain with parties and candidates when votes are wanted.

So far, in this address, there has been no special reference to the negro vote; we have been glancing at southern illiteracy in bulk, and fearful it is; and for this good reason, a white man who knows nothing is as dangerous as any other man who knows nothing. Worse he may be; worse he is, if he has more force. If he is superior in any respect, his very superiority makes him more dangerous. When machinery is out of order, the greater the power that drives it the greater the ruin. Thoughtful men in the South are awake to the danger that lurks in the illiterate white vote of their section. When they cry for help, they want education for their white as well as for their colored fellow citizens.

But, as all informed people know, the condition of the lately emanci-

pated people of the South constitutes the stress and urgency of the appeal we make to the nation for such help to meet this great emergency as only the nation can extend.

There are now nearly seven millions of negroes in the United States, about one-eighth of the whole population. The great mass of them are crowded into eight or ten of the late slave States. They increase faster than the white population. The increase of the whole population from 1870 to 1880 was 30.06 per cent.; the increase of the white population, aided by large immigration, was 28.82 per cent.; the increase of the negro population, unaided by immigration, was 34.78 per cent. Thoughtful people will consider such facts.

Out of these facts arise questions that concern the very life of the Southern States. The whole nation should have a care for what so deeply concerns the South; for the South is a vast region of untold possibilities, indissolubly bound to the Union. The nation affirmed, through a long and bloody war, that it could not get on without the South; these States have now concluded that they cannot get on without the nation. We are one people and we expect to remain one people.

To the people of the South it is a matter of overwhelming concern that these millions of negroes, made citizens in a day and armed with the ballot, should at the earliest possible moment be qualified for citizenship. But is it a southern interest only? Is it a matter of small moment to Massachusetts, to Connecticut, to New York, to Minnesota, or to any State in the Union free from this trouble and danger of a vast illiterate negro citizenship, that Georgia, South Carolina, Alabama, Mississippi, and other Southern States are now wrestling with the hardest problem that was ever forced upon any people? Does government by illiterate votes in the South mean nothing to the States North and West? May States exposed to all the perils involved in illiterate majorities suffer the evils inevitable under such conditions without infecting with the deadly virus other States more fortunate in these respects? Carlyle tells of a poor Scotch pauper woman who could not from any get recognition of her sisterhood; she died of typhus fever. Typhus fever killed seventeen other persons in her alley; and thus she got recognition of sisterhood.

These illiterate majorities are not limited to State elections; they enter into the election of President and members of Congress. If a man in New England is interested in the election of President or of the Congress, he is interested that voters in the South should have some knowledge of what they do when they deposit their ballots.

What is to be done? These people, these ignorant people, white and black, for the most part wretchedly poor, must be educated; they must be taught to read, to write, and to keep accounts. As to the majority of the parents of the untaught children in the South, it is as much as they can do to live, to live in a very cheap and humble way. They are unable to meet the expenses of the education of their children.

Some say let the Southern States educate their own illiterates. Easy solution this, so far as words go. *But the Southern States cannot do it.* In proportion to ability the Southern States are now doing about as much as the best Northern States; more than some. The State of New York is worth in taxable property as much as all the Southern States, yet these expended on their schools in 1881 \$13,359,784; in 1880 New York expended \$9,936,652. The total valuation in New York was, in 1880, \$2,651,940,000; the total valuation of the Southern States, including Missouri, was, in 1880, \$2,903,619,070; leaving out Missouri, \$2,370,923,269. New York is richer than the whole thirteen grouped in the census tables as "Southern States."

But in such comparisons it is the poorer States that deserve most credit. It is much harder for a poor man to pay 1 per cent. on his little property than for the rich man to pay 1 per cent. upon his great property; for the rich man has more left. What is left after paying to a good cause is a better gauge of liberality and public spirit than what is given.

To illustrate the general statement that the South is not able to take care of its hordes of illiterate children, let us compare two cities. The facts now to be stated are quoted from a report by Mayor Courtenay, of the city of Charleston. Mayor Courtenay says:

The facts are these: In the first place, the assessed values in the city of Charleston were \$45,000,000 in 1860; in 1880, \$21,000,000—a reduction of more than one-half in taxable values, in the face of an obligation to educate double the number of children.

This heavy load has been assumed up to the highest pitch of taxation, however, as the facts show. The taxation in the city of Charleston, in 1880, for public schools was three and one-half mills, made up under a levy of two mills under the State law, one and one-quarter mills under the special city tax, and one-quarter mill special levy to rebuild Friend Street School—in all amounting to about \$61,000 a year on public schools. And this is exclusive of an annual appropriation to the high school of Charleston and to Charleston College.

How much above a maximum this is, and what a burden this is, is evident upon comparison. For instance, compare this taxation with the city of Boston, whose schools are models and whose people have the world-wide reputation of giving liberally for educational institutions, and we find that the city of Boston gives a total of two and a half mills in 1880 for a complete public school establishment, of seven high schools, two Latin schools, one normal school, forty-nine grammar schools, and four hundred and eight primary schools. The city of Charleston gives in proportion nearly half as much again as Boston for her primary schools alone, and gives, in addition, annual appropriations to the high school and Charleston College.

We must remember, also, that this is done under a very heavy debt of the city, the interest of which requires ten mills of annual taxation. Again, consider that, besides the State tax, the total tax of Charleston City is $2\frac{1}{4}$ per cent., while that of Boston is only $1\frac{1}{4}$ per cent.

Let us consider briefly whether the Southern States, with less than half the resources of 1860, are now able to educate far more (counting the increased population, three times more) than double the number of children then knocking at their doors. Brief statements will suffice for men who are informed on these subjects. Take Georgia, more prosperous than the average of Southern States. In 1860 Georgia's taxable

property was, in round numbers, \$750,000,000; in 1880, \$238,000,000. In 1860 the wealth of Georgia, exclusive of the value of slaves, was over \$500 per capita; in 1880, about \$150. In 1881 Georgia paid for her schools within less than \$1,500 of \$500,000. At the same rate on her ante bellum property her school fund would have reached \$1,500,000. The taxable property of Virginia in 1860 was \$585,099,382.77; in 1880, \$324,955,980. Yet, in 1881, Virginia expended upon her schools \$1,100,239; at the same rate upon her ante bellum property the school fund in 1881 would have yielded nearly \$2,000,000.

Dexter A. Hawkins, esq., of New York City, in an address before the Social Science Association, at the meeting held in Saratoga, September, 1877, stated the case thus:

The assessed valuation for the taxation of property, real and personal, in North Carolina, South Carolina, Florida, Georgia, Alabama, Mississippi, Louisiana, and Texas in 1860 was \$3,244,239,406; in 1870, \$1,883,863,180—a shrinkage in ten years of 43½ per cent.

In some of these States it is less in 1880 than in 1870.

When the civil war was ended these States were crushed. They were utterly disorganized in all their industries; the investments that represented the savings of their past history were swept away. They were poor beyond conception to those not having that bitter experience.

What has been their history for nearly twenty years? A constant struggle with poverty. Embarrassed by new and strange conditions entering into, complicating, hindering all their industries, overweighted in every effort to get on their feet, loaded down with burdens and responsibilities, these States have done what they could to bear and to meet them. Hope and life would have died out of the hearts of people with less fortitude, courage, and endurance. They deserve respect, at least, that they did not utterly despair of themselves. We cannot compare the history of the past twenty years in the Southern States with any other history; that history stands alone.

What has been achieved in reorganizing society, in building up the country and its institutions, has been accomplished only by prodigious effort. These people have been lifting an increasing weight with a shortening lever; for, while there has been true progress and real growth in the industries of the South, the responsibilities of taking care of the ignorant population have grown faster than the ability of these States to meet them. If any doubt, let them compare the increase of the non-taxpaying population (over 34 per cent. in ten years was the increase of the negro population) with the meagre increase of taxable property in these States and with its actual decrease in others.

The plain truth is, the taxpaying people of the South have, as a whole, not been able to educate their own children; nevertheless, with the exception of two or three States (and these States are nearest the border), they have expended what school funds they had without distinction as to races.

As to the colleges and higher grade schools of the South, many of them, during this long period of storm and stress, have died utterly; all that survived were crippled; all are crippled now, with the exception of some of the State institutions and one or two others, helped mostly by the generosity of a few northern patriots and friends of their race. None of them have had the best facilities for doing their work. At every step in her efforts to do her educational work during this troubled period the South has worked at a disadvantage. The South has been under a grievous burden since the spring of 1861.

If it be demanded of me, let it be admitted that there is not so great an interest in popular education in the Southern States as in some others. But this only increases the force of the argument; for it increases the peril that is in our huge mass of illiteracy and diminishes the ability to meet it of those who are awake to the facts of the case. Beyond all question, thousands of the best people in the South are as fully awake to the truth of things and to the needs of the hour as men can be. But, for the most part, these men who do see and who do feel on this subject of education for the masses are poor—poorer than any other men of culture and character in the United States. They have done their best, lamenting their inability to do more.

Nothing is more certain than that the South cannot, unaided, meet the emergency that is now upon her.

We are told that northern charity is sending hundreds of thousands every year into the South to help do this work of education. That is true; and this patriotic and Christian benevolence is appreciated to the fullest by the best people. Heaven reward them, the Peabodys, the Slaters, Vanderbilts, Seneys, Stones, and others as generous though not so rich. They have done a good work indeed. Children's children will have them in everlasting remembrance.

But this should not be considered as entering into the question of the ability of the southern whites to do the work that is upon them, and it is the ability of the white people that is to be inquired into, since they pay the taxes. Nearly all the money sent South since 1865 for educational purposes has been devoted to the education of the negroes, especially the great sums expended by the churches and benevolent societies of the North. This is not regretted; we do not envy the negroes the help that Providence sent them. They needed it sorely, and we rejoice with them. But this method of help, good as it has been, left the white people, thousands of them as poor as the negroes, to struggle with their own burdens without the help the negroes had, and left to the white people who were a little better off the burden of their own responsibilities in the matter of education and the payment of the taxes for such public schools as they had, dividing it with the negroes who paid next to no taxes, and yet had help that they had not.

Nothing less needs proving than this: There must be more schools

and better; more teaching and better teaching. This will cost money, a great deal of money, more than these impoverished States can raise.

Where is it to come from? From individuals? But a nation cannot depend on individuals to do a work almost too great for the whole people.

From churches and other benevolent societies? They are but aggregations of individuals, and societies representing but a part of the people cannot do a work that belongs to all.

It is the duty of the whole nation to help, for a time, the States with their heavy burdens. Is it better for this nation to leave these millions of illiterate people, with ballots in their hands, untaught, than to help the States carry a load that is crushing them? Is it better for this nation to endure these evils that are now upon us and to brave the greater evils into which they are growing day by day than to spend a few millions, paid into its treasury by the people, and to do this for the benefit of the people, that is, for its own benefit?

This duty of helping the States to educate these millions of illiterate people is a national duty, for national interests are involved in it. It is a national duty, for it must be done; the States most deeply involved cannot do it and the nation can. It is a national duty for the plain, historical reason that the nation, as such, made these millions of negroes citizens and voters before they were prepared for their new duties and relations, and in the very act of doing it and by the very method of doing it largely took from those who are now called on to prepare them for their new duties and relations the ability to do it.

The men of the South who have accepted the issues of the war in good faith may well use the language of Hon. W. E. Forster, of the English Parliament, in reply to the radical wing of his party: "*You demand universal suffrage; I demand universal education to go along with it.*"

Universal suffrage we have, and in the South, as to the large majority, illiterate suffrage. There is no remedy for the evils of this state of things, whether by repression within the States where the trouble is, whether from force of any sort without these States. There is no remedy that leaves out the school-house and the schoolmaster. Ethical education is sorely needed; but ethical education will make slow progress without the education of good schools.

Sensible and just men are not now discussing slavery; that is passed out of the argument. They are not discussing the relative blameworthiness of the sections. Doctrinaires and narrow and bitter men do that. Sensible and just men say:

"See here, this multitude must be educated; it concerns us all; the nation is endangered by this ignorant ballot; these Southern States cannot carry this tremendous weight, this burden no longer theirs in any exclusive sense, but now the burden of us all. The nation can bear it and bear it easily. Let the nation forthwith get about it."

We hear somewhat about the right of Government to do this work.

(1) It is now too late to raise this question. From the time of Washington the General Government has been doing things that involved the principle and asserted the right to extend aid from the public funds for the work of education. Time and again the Congress has set aside public lands or the proceeds of the public lands for the uses of education in the different States.

(2) When a nation sets its heart on doing a great and good thing it can find a legal way to do it.

(3) As to this call for national aid, so far as the South is concerned in it, there is one fact lying right in the heart of the question that no constitutional metaphysics or legal sophistries can dispose of or make other than it is. This nation asserted and exercised the right to emancipate and to enfranchise several millions of people, to make men citizens and voters by proclamations and acts of Congress before they could read or write, before they were prepared for the duties, responsibilities, burdens, and dangers that were thrust upon them. The time has fully come when the nation should exercise the right—seeing that it has ample ability—to do what can be done, and as soon as it can be done, to prepare them to be what they are not—intelligent citizens. If the nation owes nothing to its own safety; if it owes nothing to the taxpayers of the South, charged by the nation with responsibilities they cannot meet, the nation, by every consideration of justice and humanity, owes it to the helpless negroes that it set free and gave ballots to, to now do what it can to help them get ready to be free indeed, and to vote as freemen, and not simply as “freedmen.”

Some in the South seem somewhat troubled about a sort of drift towards “centralization” that may be lurking in this proposed national aid to education. It seems reasonable that the nation should meet an emergency that its own act created. Moreover, if the nation should give this aid—coöperating, as it is most natural that it should do, with the State school authorities—there is no danger of centralization.

Some say this theory of a “paternal government”—this call upon Congress for help to educate—involves the right to call for other help, as, for instance, for “shoes for the children to wear to school.”

If it shall appear upon inquiry that wearing shoes enters into the very essence of the qualifications of a voter and voters cannot by any means procure shoes, why, in the name of common sense, let the nation buy them shoes or have done with the farce of voting. But a man may be a qualified voter without wearing shoes. One may conceive of a bare-foot philosopher voting wisely; no man can conceive of a philosopher who is also an ignoramus; no more can he conceive of a citizen qualified as an elector who does not know what he is doing.

If the nation, through its Congress, grants this petition for aid the money will be wisely and honestly used; for the best people in the South will be vitally concerned in its proper use, and the whole people—

the rich, the poor, the white and the black people—will all feel a personal interest in it. Every father will feel himself bound to watch with ceaseless vigilance that this precious money—the gift of his country for educating his children—be wisely, faithfully, economically used.

Judge WILLIAM LAWRENCE, First Comptroller of the Treasury, was then introduced, and addressed the meeting as follows:

CONSTITUTIONALITY OF NATIONAL AID TO EDUCATION.

LADIES AND GENTLEMEN: The remarks of the distinguished gentleman who has just taken his seat and the revelations of the census of 1880 demonstrate, among other things, *two* principal facts, which it is now proper to notice:

(1) That in all the States of our Nation illiteracy exists to an extent far greater than has been generally supposed, and that in some of them it is so overwhelming and appalling as to endanger the existence of republican government; and,

(2) That in a few of the States of the South in which illiteracy in some measure predominates the limited property resources of the people are wholly inadequate, by any system of taxation that can be devised, to supply the requisite number of teachers and other needed facilities for common schools.

We are therefore confronted with the question whether Congress can in this emergency furnish any or adequate relief. I propose to demonstrate that the Congress of the United States has ample power, with the assent of any State to aid common schools therein established or authorized; and that, without such assent, Congress has power to organize and conduct schools in any State in which there is no system of schools adequately provided and supported.

In order to demonstrate these propositions it is necessary to define a republican government and to state one condition essential to its existence:

(I) A republican government is one in which the sovereign legislative power is exercised by representatives elected by qualified voters who include substantially the entire adult male population. This is the American definition. I do not now consider the question so much mooted, whether the true republic should extend suffrage regardless of sex.

However that may be, a government which excludes from the privilege of exercising suffrage any portion of the adult male citizens subject to its jurisdiction, who are not guilty of crime and who comply with the just requirements of reasonable laws, is not republican.

(II) It may be assumed, that a republican government cannot be maintained without a substantially universal secular common school education for all children of proper school age.

On this subject it cannot be necessary at this late day to quote the opinions of statesmen, or to add proof by reference to the dead and buried republics of other ages or to the utter failure of those which at this day are denominated republics, but which in fact are mere military despotisms in a chronic state of revolution.

(III) Assuming that the education to which reference has been made is essential to the existence of republican government, the real question is whether the National Government has power to preserve its own existence by providing such education.

I affirm that it has such power (1) by express provision of the Constitution, and, (2) even without this, as a necessary incident of the sovereignty with which it is invested.

The express power is found in article IV, section 4, of the Constitution, as follows:

The United States shall (1) guarantee to every State in this Union a Republican Form of Government, and (2) shall protect each of them against Invasion; and, (3) on Application of the Legislature, or of the Executive (when the Legislature cannot be convened) against domestic Violence.

So far as the exercise of legislative power is necessary to perform the duties required of the United States by this section, it of course belongs to Congress. Thus Chief Justice Taney said in *Luther v. Borden* (7 Howard, 42), that—

It rests with Congress to decide what government is the established one in a State. For, as the United States guarantee to each State a republican government, Congress must necessarily decide what government is established in the State before it can determine whether it is republican or not.

It will be noticed that Chief Justice Taney says "the United States guarantee to each State a republican government." The words of the Constitution are "a republican *form* of government." This manifestly was intended to secure the *substance* as well as the *form*, since the mere form without the substance would be *vox et præterea nihil*.

It is clear, then, that Congress has power by legislation to guarantee to each State a republican government.

To guarantee, says an eminent author, is "to become responsible for; to warrant; to undertake for another that, if that other does not do the thing, the party guaranteeing will himself do it." (Paschal's Annotated Constitution, third edition, section 233.)

If Congress shall by law decide that a State has not the means to provide adequate education or has failed to do so, and that aid to such State is essential to preserve in it a republican government and provide for such aid accordingly, this is an exercise of power which is warranted by the Constitution and cannot be questioned in any form.

The same may be said of the exercise of power by Congress to establish and control schools requisite to fulfil the duty to guarantee.

All this must be manifest from several considerations.

(1) The provision of the Constitution which gives the power to make

the guarantee is coupled with clauses giving two other powers, one to protect each State against invasion, the other to protect it against domestic violence. From this it is clear that the framers of the Constitution were dealing with the general subject of perpetuating the existence of a republican government in each geographical State. With this purpose in view, the Constitution gives power to Congress to save each State from destruction by foreign invasion or from domestic violence. One danger of domestic violence was slavery, but all forms of domestic violence are comprehended. In considering the power to guarantee a republican government, the maxim of construction is to be kept in mind, *noscutur a sociis*. The Constitution, upon this maxim, no less than by its own plain words, gives to Congress the power to save each State from destruction, from whatever source the danger may arise or be threatened.

Universal illiteracy is more dangerous than foreign invasion or domestic violence. Such illiteracy may indeed be a source or cause of domestic violence.

When invasion is threatened, Congress may act. When domestic violence may be reasonably apprehended, Congress may act.

When appalling illiteracy is not only prospective, but is already upon any State, threatening the overthrow of a republican government therein, then Congress can intervene, is bound to perform the obligation imposed on the United States to guarantee the existence of a republican government.

(2) The existence of the power of Congress, as stated, is fully proved in principle by high authority. Thus, it is said :

If there be any general principle which is inherent in the very definition of government and essential to every step of the progress to be made by that of the United States, it is, *that every power vested in a government is in its nature sovereign and includes, by force of the term, a right to employ all the means requisite and fairly applicable to the attainment of the end of such power, unless they are excepted in the Constitution, or are immoral, or are contrary to the essential objects of political society.* (Story on Constitution, 1,340.)

In other words, the Constitution, in giving to Congress the power to guarantee a republican government to each State, gives also to Congress the incidental power to employ the necessary means to do so, including the establishment of or aid to common schools. This mode of construing the Constitution is sanctioned by principles as old as the common law. Thus it is laid down among the maxims of Dwaris for the construction of statutes that—

In statutes, incidents are always supplied by intendments; in other words, whenever a power is given by a statute, everything necessary to the making of it effectual, is given by implication; for the maxim is *quando lex aliquid concedit, concedere videtur et id per quod devenitur ad illud*. (Potter's Dwaris on Statutes, 123.)

This rule is equally applicable in the construction of the Constitution. The application of it now is that the Constitution, in giving to Congress the power to guarantee to each State a republican government, gives

also the incidental power to use the means by which the guarantee can be made effectual, including the right to aid or establish common schools as a means to that end.

In those cases in which Congress is authorized to exercise powers of this character, the propriety of the means employed cannot be called in question.

Thus it has been held by the Supreme Court of the United States that—

If a certain means to carry into effect any of the powers, expressly given by the Constitution to the Government of the Union, be an appropriate measure, not prohibited by the Constitution, the degree of its necessity is a question of legislative discretion, not of judicial cognizance. (*McCulloch v. Maryland*, 4 Wheaton, 316; *United States v. Marigold*, 9 Howard, 567.)

It is thus shown that the Constitution gives to Congress express power to guarantee to each State a republican government, and that Congress may aid or establish schools as a means of securing the permanent existence of republican governments in the States.

(IV) The power of Congress to aid schools in the States exists as a necessity, as a part of the means of preserving national existence.

But it cannot be necessary to argue this branch of the subject.

(V) This power of Congress has been asserted and exercised from the foundation of our republican system of government. Immense grants of lands have been made by Congress in aid of common schools and colleges. If Congress has no power to aid schools and colleges, these grants are void. But the power to make them has been settled by long continued *usage*, which is said to be "the best interpreter of things, *optimus interpret rerum usus*." (Broom, *Legal Maxims*, 917.)

It would be interesting to present the number and dates of the acts of Congress making these grants and to state the amount of land granted to the States respectively, but time will not now permit.

(VI) For two years past Congress has been discussing the proper mode of reducing our superabundant revenues. This is well. A reduction is demanded by the best interests of the people. While internal revenue taxes are permitted to remain on spirits and fermented liquors, I would, if I could, distribute the annual revenue derived therefrom—amounting to an average of \$65,000,000—in just proportions to the several States. This would give to each State a sum sufficient to make a large reduction in the taxes of the overburdened taxpayers. It would enable the States to pay better wages to the teachers in our common schools, who richly deserve better compensation for the highly meritorious services they are rendering all over the Republic.

By this policy the number of common schools in some of the States would be multiplied, the neglected children of the colored people who have so recently emerged from bondage be cared for and educated, and the means of ample education be secured for all the children of the land, the poor and the rich alike.

With universal education the Republic will live to bless the ages of the future.

Hon. JOS. DESHA PICKETT, State superintendent of public instruction of Kentucky, followed Judge Lawrence. The stenographer's notes of his remarks were submitted to him for revision before publication, but have not been returned. Mr. Pickett explained that he was reared in the Jeffersonian and Jacksonian school of politics and was taught to have confidence in the rights of the States; he therefore took exception to the statement that Congress has authority to establish school systems irrespective of the States. But that is not the question which is presented here. The real question is, Shall the Congress of the United States assist the States in carrying out their systems of education? The speaker referred to the grants of land made by the National Government in aid of education, and, concluding, said:

Let us then come together with a generous, fraternal spirit, and let us try to devise some ways and means whereby we may present this great question to the consideration of the Committees on Education and Labor of the Congress of the United States; and may we be blessed in this effort.

FOURTH SESSION—THURSDAY MORNING.

WASHINGTON, *February 22, 1883.*

Mr. CALKINS, the president, called the meeting to order, and prayer was offered by Rev. B. G. Northrop.

Mr. NORTHROP, from the committee on national aid to education, presented the following resolution:

Resolved, That in view of the necessity of education to the perpetuity of free institutions and of the great and disproportionate burden which adequate provision for universal education would impose on some of the Southern States, this association expresses its conviction that it is alike the duty and the interest of the National Government to extend to the several States, especially to those in which the burden and danger of illiteracy are greatest, such pecuniary aid as shall enable them to provide that all the children and youth within their borders shall receive at least an elementary education. We also express our conviction that such direct appropriations from the National Treasury should be made to the several States in proportion to illiteracy, and distributed under proper conditions and safeguards, through existing local officers. We believe that the emergency is so urgent as to demand immediate action by the present Congress, and that ten millions appropriated at once will avoid more than twenty times that amount twenty years hence; for universal education, when once fairly tried, will be continued without national aid.

On motion of Mr. NEWELL, of Maryland, the resolution was adopted.

Mr. RICKOFF, of Yonkers, N. Y., moved that the subject of Indian education be called up. Carried.

INDIAN EDUCATION.

The time for remarks from General Armstrong not having yet arrived, the president called upon Hon. B. G. Northrop, ex-secretary of the

State board of education of Connecticut, to speak upon this topic, with spécial reference to his recent visits to the Indian school at Carlisle Barracks, Pa., in charge of Capt. R. H. Pratt.

ADDRESS OF HON. B. G. NORTHORP.

Mr. NORTHORP said that he had not expected to open the discussion, but to follow General Armstrong and Miss Fletcher with such suggestions as his three visits to Carlisle had brought out. He then spoke as follows:

In one of these visits I spent a week in lecturing to the teachers on the improved methods of instruction, and also occupied the school hours of each day in drilling the different classes in their school rooms. Their interest, attention, and prompt response in every exercise, their eagerness to learn, and their hearty appreciation of the efforts made in their behalf, were a welcome surprise. Before describing the grand results accomplished at Carlisle, a word is needed in regard to the starting of this project.

In 1875, Captain Pratt, who had been long occupied in frontier service and had had a long and varied experience in Indian border wars, was directed to take charge of seventy-four prisoners—murderers, the worst class of criminals—to be imprisoned for three years at Fort Marion, St. Augustine, Fla. He early saw the need of occupation for these prisoners and at once started plans for educating them in trades and industries as well as in books. The sleepy old Spanish town furnished few facilities for industrial occupation. All opportunities, such as working as hostlers or in saw-mills, picking oranges, and grubbing the land, were eagerly seized, and the work was well done. It illustrates the ingenuity of Captain Pratt in devising employment for them that they were enabled to earn in a single year \$12 by polishing sea-beans. Twice they floated pine logs from a distance and built log houses within the fort, simply as a lesson in carpentry. They split the clapboards, made stick chimneys, chinking and daubing them, that they might learn to build houses on their return. They were taught many other industries, as well as the English rudiments, and such were the happy results that at the expiration of the time of their imprisonment twenty-one were inspired with the hope of a better education and declined to return to their tribes. Seventeen of these were taken to Hampton and the remainder were placed in families.

Captain Pratt early fixed his thoughts on educating the Indians in the East, where they would be removed from the debasing associations of the tribes and where they might be brought at once into a Christian atmosphere and surrounded by the conditions most favorable to their education and development in the trades.

Three years ago he succeeded in securing the consent, not only of the Interior and War Departments, but of Congress, to his use of the Carlisle Barracks for an Indian school.

In September, 1879, Captain Pratt was sent to Dakota, and then to the Indian Territory, to seek the boys and girls whose parents would commit them to his charge to be educated. So successful were these efforts that the school at Carlisle was opened on the 1st of November following with 147 students. The school is no longer an experiment. Its results have greatly exceeded the expectations of its friends. There are now 379 Indians in attendance, and a more interesting and happy company of youth I have seldom met.

There is a great and growing interest on the part of the chiefs in Indian education. This is evident from their readiness to send boys and girls so far from home for their schooling. A few years ago they would have rejected such an offer with scorn. The change in this respect is great and most hopeful, and should meet a hearty response from our Government. Captain Pratt says that such has been the result of this experiment and such is the tone of the numerous letters sent every week by these students to their parents and to the chiefs of their tribes that he would guarantee that he could start to-morrow and in four weeks, with the cordial approval of their parents, bring 1,000 Indian youth East to be educated; he would guarantee that within one year he could bring 10,000 Indians to attend kindred schools in the East, if they were open to them. This is one of many proofs of the faith and confidence which the Indians have learned to repose in this man, who is so widely and justly recognized as their benefactor and friend. The Indians are now brought East for schooling during a period of five years, instead of three as at first. One fact of great encouragement in this work is the new view of the Indian chiefs and the more educated in the tribes, that the alternative before them is education or extermination. They have come to feel—it is a lesson they have been long in learning—that they must understand the white man's ways as a matter of self defence and as the condition of their future prosperity.

The common feeling has been that the Indians are not educable; that they are a doomed race and must soon pass away, and the sooner the better, and that you might as well undertake to educate wolves or wild buffaloes. Such are the sentiments most frequently and harshly expressed on the frontier. But the Indians are here to stay. According to the Census there are nearly 300,000 Indians in the United States. We have spent over \$500,000,000 in Indian wars. We find that it costs, on an average, \$100,000 to kill an Indian; that one Indian killed has cost, by exposure as well as the incidents of war, the lives of ten white men. In reference to the practicability of educating them, Bishop Whipple says, after long association with them, that they are the noblest type of heathen on the face of the globe, and he gives strong expression to his views of the desirability and necessity of educating them. After a careful inspection of all the rooms and examination of all the classes, these youth seem to me to be remarkably keen-eyed and quick in obser-

vation, docile and tractable, though not excelling in the mastery of the English language. One hindrance to their progress in English is the very limited linguistic training they have had in their own tongues. There are at Carlisle representatives from 34 different tribes, speaking different dialects. These languages are said to be exceedingly meagre. The number of words they have used in their own vernacular is small. This difficulty will be appreciated by all who remember that language is the chief instrument of human investigation and progress, the means and measure of any one's growth and culture.

The question has been whether the Indians shall be educated near the reservations or far away. Captain Pratt's experience proves that the further they can be removed from their tribal associations and influences the better for them.

In Carlisle all the boys attend the Sunday schools connected with the different churches of that town. Great interest in their welfare is manifested by the good people of this place. Their pastors frequently address them in their school chapel, where the fine singing of these Indian youth is a surprise to every visitor. The kindness and sympathy shown them on every hand is in striking contrast with the influences which have met the Indian on the frontier, where the white man has so long been viewed with suspicion and dread.

In the "reservation schools," the savage influences of the camp or the visits of parents have often neutralized the lessons of their teachers.

In looking over the report of the Indian Commissioner, which gives the statements and experiences of the agents and teachers, I find the great embarrassment in the organization of schools has been the irregularity of attendance. That difficulty is entirely overcome by bringing them far from the tribes. Of course, the matter of attendance is easily regulated while they are at such a school as that at Hampton, or Forest Grove, or Carlisle. The last is much larger than any other supported by the Government. The matter of discipline is here very simple. I have in hand an account of the instances "reported" to the head teacher—all the teachers are ladies—for any form of misconduct during the last year; in five months there was not a single case reported.

As an illustration of their facility in learning, I may mention that I saw a class of thirty draw from memory a very excellent map of South America on the blackboard in four minutes. They drew a map of the United States in about five minutes. I have a letter written by a grandson of Red Cloud, who entered the school on the 4th of December last, a dictation exercise, but a very good specimen of writing for so brief a time of schooling. I have another from the daughter of Spotted Tail, who entered at the same time, which is a copy of a letter she wrote to her mother, and many others, which, under the circumstances, are fine specimens of handwriting and composition.

I saw the strongest indication of the pupils' desire to master the English language, and very commendable indications of their progress

in all the common English studies. They are occupied half a day in the shops, learning industrial trades, and half a day at school; and there is an evening school of an hour or an hour and a half, in which all the shop boys and girls, as well as any who have not yet found opportunities for industrial training, are occupied. They are doing admirable work in carpentry, joinery, harness making, the making of boots and shoes, blacksmithing, the manufacture of carriages, tinsmithing, and in baking. The Indian Office purchases of them a large supply of coffee-pots for the Indian service. The girls are learning the use of the sewing machine, even the more difficult work of making button holes and cutting and making dresses; and in the laundry the girls wash and iron some 2,500 pieces a week; in summer they are occupied, as much as can be arranged for, in learning domestic work in families, the boys being engaged in farm work. There is already a good sized farm belonging to the institution, and the expectation is that a much larger farm will be secured at an early day. To give the boys the desired training and experience in farming, there ought to be not less than 500 acres connected with the school. No other training would be so useful to them on their return to their old homes, where agricultural skill is little known and greatly needed. The farm work is done without machinery, that is, they do not use the mowing machine nor reaper, so that the boys may be trained in the hand work that may be of most practical benefit when they return to their tribes.

The census tells us that there are about 50,000 Indian youth of school age. There are 476 in Hampton, Forest Grove, and Carlisle, nearly 4,000 in reservation day schools, and 3,999 in boarding schools near the reservations, so that the demand, which is immediate and urgent, is only partially met.

It seems to me that Captain Pratt, from his long and varied experience, from his natural tact, quick perception and discernment of human nature, and especially of Indian character, his patience, broad Christian sympathies, his enthusiasm, and magnetic power, is marvellously adapted for his position. I think he has done more for the solution of the Indian question than any other man for the last fifty years.

The school governs itself; I mean there is a spirit of order and devotion to education developed among the boys and girls that leads them to repress any gross impropriety or disorder. In any serious case discipline is enforced by court-martial, and some of the older boys constitute the court. They are sure to make a just and fair decision, and a decision given by them is accepted as right and proper by the boys.

There are about 130 girls at Carlisle. The ages of the pupils range from nine or ten to thirty or more.

Never before in our history have the American people had such an opportunity of befriending a long injured race as now. The exigency is urgent. A liberal expenditure for Indian education will prove a wise investment. One million expended for this purpose now will be worth

more than twenty millions twenty years hence. Let the Indian be once educated, made a citizen and a landholder, and he will never again go on the war path.

ADDRESS OF GENERAL S. C. ARMSTRONG.

The work now being done at Hampton we feel to be of especial interest, including, as it does, experiments on a large scale with representatives of two races, the Negro and the Indian. These people, who are with us and with whom we share a common fate, are a thousand years behind us in moral and mental development. Substantially the two races are in the same condition, and the question as to what education is best for them, and how such education is to be put within their reach, is pressing itself closely upon all thinking men and women. Something more than ordinary school training is required for them, and it is evident to us that power lies not so much in what is taught as in the teachers and the surrounding conditions. Race education must be recognized as demanding thorough study and involving many factors. It is not tuition from books so much as a massing of all the influences of civilization. Our pupils are clay in the hands of the potter; they strive to live as they see us live; our responsibility is tremendous and our interest proportionate. Nothing short of the best teachers, with the best methods, can do justice to the work, for they must begin ab ovo and build up the individual.

In teaching language, we have one of the best graduates of Wellesley College, thoroughly trained in methods, but depending mainly upon her own inspiration. In the industrial system our pupils find a revelation. We preach a gospel of work to those whose misconception of the value of work is shown in the low standard of the southern negro laborer and the enforced and despised toil of the Indian woman. Our students work as hard during the last month of their stay in school as during the first, are paid fair wages, with which they meet their school expenses, and now earn an aggregate of about \$32,000 a year. As far as possible we avoid charity, and develop skill often to the extent of doubling or trebling a pupil's value.

On the moral side, we ask little as to the previous life, but demand a sincere intention to improve, and strike lines of development of which very few dream. Their immorality is largely the immorality of ignorance. In my fourteen years of work among the negroes the finest, most hopeful thing I have seen is the moral rally of the women.

Negro education is, on their side, only a question of opportunity, and we, who on every hand feel our limitations, are looking to Washington to increase that opportunity. Private charity and State appropriations will not take care of 25 per cent. The rest are casting ballots which they cannot read and stand as masses to be bought and sold by demagogues. Mental training helps moral development and vice versa; the identity of interest is beyond question. I know that expensive in-

dustrial schools cannot be built up everywhere, but the principle can be introduced into any school; work of some kind during part of the session can be made essential and the main idea never lost sight of.

The solution of the negro question, in at least one of its many phases, is for the present generation, by the purchase and cultivation of land, to provide a substantial basis for the healthy growth and development of the generation to come. The hope of the race lies in their getting, not knowledge alone, but with it a true appreciation of the necessity and value of labor. It is, to those who work among them, a great encouragement to find that they are remarkably able to receive and assimilate ideas.

The Indians are, of course, a widely different race, under widely different conditions, though demanding very similar training. Five years ago we, at Hampton, knew nothing about them and took up the work as an experiment. The result in the individual is a success, our Indian graduates leave us strengthened and well equipped. The problem is, what shall be done with them? They return as educated Indians to the influence of agents, who are frequently incapable men, and the chances are against them. It becomes a question of surroundings, and these are beyond our reach. We have demonstrated the possibility of producing strong and trustworthy individuals; for the conditions which alone can insure their continuous development or a field for their work, others are responsible,

ADDRESS OF MISS A. C. FLETCHER.

Two difficulties confront one who would speak of Indian education: (1) the variety of interests involved in the subject; (2) the variety of prejudices concerning the Indians. Before speaking of the first it may not be amiss to say a few words concerning the second.

The antagonism felt toward the Indian seems to result not so much from conflicts incident to our possessing the land as from his sociologic status, which differs so widely from our own. It is a comparatively recent suggestion that a social condition similar to that of the Indian preceded our present advancement, and that an intelligent study of archaic forms of society may reveal the sources of some of the laws and customs which are still potent in our midst. This suggestion, however, has not yet affected the bulk of our people, and the indiscriminate name of "savage" is still sufficient to practically cut the Indian off from human interest and sympathy. The potency of the name "savage," both in the past and the present, cannot easily be overestimated. It fixes an estimate upon the Indian; it biases observation of him; it modifies our action towards him. During the past there have been, here and there, students who have endeavored to search through the environment of the Indian for an explanation of his condition; to investigate his language, myths, and ceremonies, to find the springs of his thought and action; to study the Indian as a fellow man, and thus learn of his real

character and his every day life. The efforts of these students have not been without effect. Already the public conscience is awakening, and to-day there are many who will admit that the Government has acted wrongfully toward the Indians; but there are not so many ready to admit a personal responsibility for the prejudice and ignorance consciously or unconsciously indulged in, which have made the deplored governmental action possible. Since it is the people who mould and give force to official deeds, the public bad faith toward the Indian has been in accordance with the general indifference toward a "savage," and, while ignorance is tolerated and misstatements concerning the Indian authoritatively taught, right conduct either in private or public capacity is not likely to be the rule.

Indian society is generally supposed to be without law or order, a sort of random life, but careful investigation is showing that most, if not all, the tribes are organized into gentes, the gens being based upon relationship; these gentes combine to form fratres, the fratres join to form the tribe, and tribes unite to form confederacies; and this order of society was in force long before the advent of our race upon this continent. The gens is, so to speak, the social unit. It possesses a distinctive name, significant of its religious or social ancestry; it has a system of names which are given to its members; it has its hereditary chief, elective chiefs, and soldiers; its location in the tribal circle is fixed; and it has its functions and duties in the religious and secular tribal ceremonies. It is, therefore, a little community possessed of distinct powers, but lacking the means of perpetuation because of the law which forbids a member of a gens to marry within his gens. Thus the ties of marriage and collateral relationship bind the gentes together. Each Indian, therefore, is born into his gens, where he is thenceforth fixed, for he may not set up his tent and establish his home except with his gens, where his immediate interests and responsibilities centre. The influence of the gens holds even when the Indians have broken up the tribal circle and scattered out on individual farms, and many generations will pass before all traces of this ancient social form will cease to exist. The fratres are effective in certain ceremonies which concern the gentes and tribe. The tribe thus compacted needs little explanation at present, except, perhaps, as concerns war and the office of chieftainship.

War among the Indians is generally a private enterprise. When a man desires to avenge a wrong or wishes to wander forth in quest of booty, or if, in the recklessness of sorrow, he desires to risk his life to assuage his grief, he steps forth into the tribal circle or open space and announces his intention to go on the war path. Then, when he has fulfilled certain ceremonies, he departs, and is followed by those of his kindred or friends who care to join in the venture. Each one goes voluntarily; no one is urged or forced to be of the party. War, therefore, rarely involves any considerable part of the tribe, and there is no

record of a war ever being the unanimous wish of the tribe. Warfare partaking of this private and irresponsible character is more disastrous than when organized and national, since it renders life and possessions exposed to individual caprice. This custom, so detrimental to the advancement of a people, is in part counteracted by the authority vested in the chiefs.

It is the duty of the chief to prevent quarrels, to settle those that take place, to preserve harmony in the tribe, and to make peace with other tribes. His office is semireligious, and he cannot go on the war path or lead his people in battle unless under the stress of defensive warfare. Our failure to understand the private character of war parties and the peaceful duties of the chiefs has led to mistakes. Negotiations have been entered into between the Government and Indian soldiers, and not with the chiefs of the tribe, who were quiet at home. The tribe, not being officially represented either in the war or in the settlement, regarded the whole transaction as a private arrangement, which could not concern it as a whole. "Paper chiefs," as the Indians often call these Indian soldiers whom our army has sometimes caught and negotiated with, possess much less influence in the tribe than we are wont to fancy, and are never counted as chiefs unless they are initiated into the office by the regular tribal form.

Indian society has, therefore, its peculiar organization and is both real and effective. The same is true of the religion of the Indian. It, too, binds him fast with minute observances, intricate ceremonials, lengthy rituals, on the exact performance of which the welfare of his daily life and his future depend. The Indian's religious duties begin in his childhood and last throughout all his days. Fixity, not freedom, is the characteristic of primitive forms of society. We do not begin with freedom, but we may attain it if we are able.

Incapacity and aversion to work are supposed to be characteristic of the Indian, and are spoken of in connection with his being a hunter, and, in the popular notion, to be a hunter is to live for sport and the pleasures of the chase. When food is dependent upon the precariousness of game, the occupation of the hunter becomes one of grave responsibility and labor. Among many of the tribes hunting was conducted under the control of leaders, who were appointed to the office with certain religious ceremonies, and any person undertaking private hunting ventures without the knowledge and sanction of these officials would incur serious punishment. These rules were rigidly observed in the buffalo country. The life of an Indian man after reaching maturity was filled with activities and dangers, and it was impossible to avoid such a life in a land devoid of animals capable of being domesticated. The restless anxiety, bred of the fluctuating supply of food, was a heavy load of hindrance and retarded the advance of the people. Sex determined the occupation of the individual. The men composed the combatant force, they were the protectors and hunters; the women

formed the non-combatant part of the community, and were the agricultural and industrial portion of the people. Many of the peculiarities of the Indian race and customs are traceable to the absence of domestic animals. Our more fortunate race, being bred on a continent where lived the sheep and the ox, laid upon these animals the burden of food supply, and the mind, thus freed from its most pressing need, asserted its creative power and devised better modes of living, and gradually society developed into coördinated forms and industries. It is a suggestive speculation to consider what would have been our present condition had our immediate ancestors been forced to accept the poverty of this country in respect to animals, cereals, and fruits. When we look at the Indian mode of life, it is important to remember his environment on this continent and its potent limitations.

The Indian has always been a kind of artisan, and his hand is skilled by long heredity to steady lines and strokes, more fine than heavy. The trend of his past turns him toward the shop, where the work of the eye and hand are coördinated. To prove the truth of this statement it is only needful to call to mind the silver work of northern and southern Indians, the bows and arrows and other weapons, the wrought bone implements, the pipes, both historic and prehistoric; nor should woman's handicraft be forgotten, her weaving, quill embroidery, the articles made of skin, bark, and wood, her pottery making and free hand ornamentations. Our museums bear ample testimony to the industrial ability of our native races. The Indian, therefore, is not lazy, but he does not labor as we labor; he has not learned the value of persistent work, which begets provision and care for the future; and his environment in the past has been of such a character as to furnish no suggestion as to the need of such caretaking, but rather the contrary.

It is worth noticing that the Indians have not invented a lock and key, as it opens a singular vista concerning their estimate of possessions. When about to leave their villages they cached their goods to prevent loss from their enemies. Thieving among them is rare. The chiefs enforce the return of articles stolen. It would almost drop the race from the list of mankind to assert that Indians never steal, but it may truly be stated that stealing is not a characteristic trait. The contrary prejudice on our part is queerly indicated in the following quotation from an official communication: "They [the Indians spoken of] are honest, or, at least, as honest as it is usual for Indians to be. I have never known them to steal and their word can usually be relied on."

Treachery toward a friend is almost unknown among Indians. Toward an enemy it is as it is with us: "All is fair in war." To the outside observer vengeance often seems indiscriminately practised by the Indians, but, according to their laws of the responsibility of kinship, the acts find explanation. Among the Indians kindred rise and fall together; any or all can be held responsible for the act of any one of kin, whether all are cognizant of the act or not. According to our law innocent and

ignorant persons may thus be made to suffer, but, according to Indian law, kinship must bear the burden. It is not many centuries since a similar code held us in its clutch.

When fairly dealt with the Indians are, as a rule, friendly, honest, and true. Truthfulness is an Indian trait. The ideal man is "straight." "I have talked to you without branches," said a venerable chief. The Indian idea of truth is simple, literal, hugging close to the fact, and this idea is consonant with his elaborate social and religious ceremonies. "It is" or "It is not" covers all the ground to the Indian, and he finds it difficult to comprehend the contingencies which hedge about our life and thought.

A careful study of the Indian reveals him to be a man bearing the marks of a common human nature. His peculiar environment has developed him in lines that do not coincide with our lines of development. If his ancient environment were to continue unaltered there would be little hope of any speedy or great modification of his ancient social and religious forms. But his environment has already changed, and he is to-day stranded upon unknown and untried circumstances. For this change we are directly responsible, as well as for the difficulties involved and their solution. We have corralled the Indian and tried by various expedients to postpone facing the problem of his future, until at last further delay is impossible. His future is indissolubly linked to our own, and the welfare of both races demands careful consideration of the question before us and the difficulties involved in it.

According to the last report of the Indian Commissioner there are in the territory of the United States, exclusive of Alaska, 262,366 Indians. Of this number 64,393 belong to the five civilized tribes in the Indian Territory and the Six Nations of New York State, leaving 197,973 Indians whose treaties and relations place them in direct line with our responsibility. The amount of land held in reservations is 224,259 square miles, covering an area of 143,525,760 acres. Deducting the amount belonging to the civilized tribes before mentioned, which is 19,672,147 acres, of which only 9,500,352 are classified as tillable, there remain 123,853,613 acres, contained in about 124 reservations, not including the Pueblo villages. These reservations are under the management of 59 agencies and are scattered over 11 States and 9 Territories.

Distribution of uncivilized Indians in the United States.

States and Territories.	Reservations.	Agencies.	Indian population.
California	5	4	11,013
Colorado	1	1	925
Iowa	1	1	350
Kansas	5	1	633
Michigan	3	1	9,795
Minnesota	9	1	4,382
Nebraska	6	2	4,014
Nevada	4	2	7,831
Oregon	6	5	4,520
Wisconsin	7	2	7,756
Texas (military control)			108
Arizona Territory	6	4	14,241
Dakota Territory	13	9	30,117
Idaho Territory	4	3	3,652
Montana Territory	3	5	18,705
New Mexico Territory	3	3	28,527
Utah Territory	2	2	2,371
Washington Territory	16	4	13,286
Wyoming Territory	1	1	1,782
Indian Territory, exclusive of civilized tribes	19	6	18,531

There are, besides, 15,434 Indians living at large without Government supervision or special land provision, and this does not include the remnants of tribes living in the Eastern States. The wide extent of country over which these tracts are spread, the variety of products, and the character of the soil should prevent too sweeping generalizations when considering how these Indians are to become self supporting on these lands.

Heretofore the question of Indian land tenure has overshadowed all other considerations pertaining to his welfare. Important as is this question, the statistics contained in the Commissioner's report show it to be less simple than has been supposed. Of the 123,853,813 acres contained in the 124 reservations and set apart for the support of the 197,973 Indians, only 8,096,463 acres are reported as tillable, which would give not quite 5 acres to each Indian. This calculation, however, is based upon an even distribution of the tillable land according to the location of the population, but the report shows that the tillable land is very unevenly distributed.

In California the number of Indians upon reservations is 4,874 and

the tillable land is put down at 5,500 acres, giving to each Indian $1\frac{1}{2}$ acres for his support, and that, too, in a region where irrigation is necessary to raise an adequate crop, and when we add the 6,579 Indians in the State who are not under any care the pro rata amount of land would be still less. In Michigan the 65,000 tillable acres give to each of the 9,795 Indians a little over $6\frac{1}{2}$ acres. In Wisconsin $2\frac{1}{2}$ acres of tillable land would be the portion of each one of the 7,756. In Nebraska nearly 30 acres could be allotted to each Indian. In the Indian Territory about 40 acres would be the share. In New Mexico barely 5 acres would go to each one of the 28,527 Indians.

In view of these and similar figures which could be presented, the question of the Indian becoming self supporting is something more than giving the Indians titles and telling them "to go to work on their lands," even if every Indian were adapted to farming. Agriculture, when the land is suitable, will undoubtedly be the employment of a large number of Indians, but it is clearly impossible for all, since there does not remain enough tillable land to yield support from the soil alone. The inexperienced labor of the Indian adds to the difficulty, and this arises from his isolation and consequent lack of training by means of observation and contact with farmers. It may not be inopportune to allude here to the fact that, heretofore, tilling the land has been considered by the Indians as woman's work, and the Indian man possesses the aversion, common in our own race, of one sex entering upon the conventional occupation of the opposite sex.

A considerable portion of the land classed as tillable requires irrigation, and to make such land profitable capital is needed and intelligent labor to construct ditches, canals, flumes, &c., and to keep them in repair. To force a people to accept the responsibility of gaining self support under such circumstances involves the obligation on our part of providing an education adapted to the environment.

A considerable portion of the land reserved is suitable for herding and there are many persons in our midst who advocate this occupation for the Indians as especially suitable and quote the advance of our race in the remote past through herding. The environment of our race was very different from the conditions of this continent, where the absence of animals capable of domestication has left the Indian without a heredity which would tend to make him successful in the care of animals. Herding is to-day not a pastoral occupation, but a business requiring capital, executive ability, and a knowledge of the market. None of these requirements are at present possible to the Indian, particularly with his barrier of language and ignorance of commercial methods. Herding for the Indian is for him to become practically a "cow boy," and the value of this schooling for civilization is at least questionable.

Looking at the Indian tribes from a close personal knowledge and study of their life and customs, it seems plainly indicated that variety of occupation and modes of winning self support is to be the rule with

them as it is with us. Nor can one expect every Indian to become an industrious, enterprising landholder. There will be such among the tribe, but there will also be the shiftless, indolent class that exists in every community. Heretofore this class among the Indians has been mainly regarded by us, and we have been inclined to gauge all Indians by the non-progressive ones. Our method of treating the race has been to level down and to attempt to make the community alike. The results have been unfortunate. It is the salvation of a community to permit those who can to advance and distance the less vigorous. It rouses latent forces and brings about thrift and social improvement. A moment's reflection will suffice to convince one of the disasters sure to follow an opposite course, and yet it is just this opposite course which has been enforced without exception upon the Indians until very lately.

The industrial schools at Carlisle, Pa., Hampton, Va., and Forest Grove, Oreg., are movements toward recognizing the value of the individual Indian. At these schools he is taught trades, the value of labor, personal responsibility, and is thus prepared to cope with the world and earn his own living. If, after five years spent at either of these schools, he chooses to become a farmer, stock raiser, or mechanic, he enters the field with a wider knowledge, a shiftiness of mind, that he could never have gained without this industrial training received at these schools and direct and friendly contact with our own race. Such training is the key which unlocks the prison door and sets the Indian free from the trammels of his own past and the white man's prejudice. Work makes the world akin, and the Indian can and he is willing to work, and eager to learn, as eager at least as it is possible for him to be, since he does not fully understand the benefits of knowledge. As has been remarked, the heredity of the Indian man inclines him to the trades, and he has shown considerable adaptiveness where opportunity for such work has been given him. In any vocation, however, which the present generation may undertake, allowance should always be made for the Indian's previous lack of training in persistent labor; this lack is perhaps the greatest drawback from which the Indian suffers.

The one thing imperatively needed for the Indian is industrial education. Educate him thus and he becomes a friendly neighbor and co-worker. Keep him in ignorance and isolation and he becomes dangerous to his own future and to those about him.

The Commissioner's report states that the number of Indian children who are of school age, exclusive of the five civilized tribes, is 34,662, and this is an underestimate, as several tribes are not reported. The number of reservation schools is given as 73 boarding, 105 day, and 2 night schools. These schools are maintained at a cost to the Government of \$278,733, exclusive of rations and part of the clothing. Various religious societies contribute \$58,725, and the State of New York \$17,644. The industrial schools at Carlisle, Pa., Forest Grove, Oreg., and the Indian department at Hampton, Va., receive from the Govern-

ment \$91,394, and religious societies donate to these institutions \$49,882. It is not improper to state that but for the generous outside support the effectiveness of these schools would be seriously curtailed.

The schools at present in operation can accommodate only 10,202 children, leaving a school population of 24,460 without any possible means of education or instruction in the ways of civilized life.

Where is the block in the way of educating these children? It is in Congress, which should appropriate the money. It is but just to say that there are men in Congress who appreciate the need of education for the Indian, who desire to have the money appropriated; but they are surrounded by such a dead weight of indifference and ignorance that they can make little headway. This year the appropriations are inadequate, considering the needs and just demands. Treaty obligations, the appeal of the Indians through their agents, the urgent request of the Commissioner of Indian Affairs, and the plain setting forth of the Secretary of the Interior failed to move the congressmen from their short-sighted policy and false notions of economy.

It is cause for congratulation that the present Secretary of the Interior is seriously and practically in earnest to secure education for the Indian. He says in his report:

At least one-half of all the Indian children of school age should be put in manual labor schools. * * * A large number can be provided for in the several manual schools of the different States. The capacity of the labor schools already established can be increased so as to accommodate a large number. A number of United States military posts, no longer needed for military purposes, can be used for the purpose of Indian schools, the Government thereby saving the cost of erection of buildings, &c. With liberal appropriations it is quite possible to provide for the education of 10,000 Indian youths in manual schools during the fiscal year 1884, and at least twice that number during the fiscal year 1885. * * *

10,000 children in the fiscal year 1884, at \$250 each	\$2,500,000
20,000 children in the fiscal year 1885, at \$200 each	4,000,000
25,000 children in the fiscal year 1886, at \$200 each	5,000,000
30,000 children in the fiscal year 1887, at \$200 each	6,000,000
25,000 children in the fiscal year 1888, at \$200 each	5,000,000

* * * At the end of the fiscal year 1888 there will have been discharged 20,000 children who will be able to care for and support themselves, and the total expense of the education of this number with those remaining in school will not exceed \$22,500,000, or about two-thirds the amount of money expended for the suppression of Indian hostilities during the years 1864 and 1865. Since 1872, a period of only ten years, the cost of Indian hostilities and military protection against the Indian is estimated by the military authorities at \$223,891,264.50, or an annual expense of \$22,389,126.45. To this must be added the yearly appropriation for subsistence, which averages about \$5,000,000 a year. * * * It is useless to attempt the civilization of the Indian through the agency of schools, unless a large number of children, certainly not less than one-half the total number, can have the benefit of such schools, and even then it is not wise to depend wholly on that agency. * * * It is believed that with an annual expenditure of between \$5,000,000 and \$6,000,000 during the next fifteen years for educational purposes of the character herein indicated, the danger of Indian outbreaks may be avoided and the great mass of Indian youths at least made self supporting.

Such prudent advice falls short of practice for the lack of money, and the money is withheld because the people who elect the congressmen are indifferent and ignorant concerning the Indian and his needs. It is most fitting that at last this national interest and question has found its way before the educators of our country, for they have the power to spread knowledge and hasten the day of right doing toward the Indian race.

SCHOOL SUPERVISION.

Mr. SMART moved that there be a recess of five minutes; which was then taken.

After this recess the president called for speakers on the subject of supervision in accordance with the following published programme :

SCHOOL SUPERVISION: SPECIFIC AIMS; METHODS EMPLOYED.

It is desired that each superintendent shall present a definite, brief statement as to what is made the leading aim in his supervision, with a very concise description of the most successful methods employed, the kind of supervision to be designated as State or general, city or graded schools, country or ungraded schools.

In order that there may be such unity in points considered as will allow an arrangement of the statements into topics, it is suggested that attention be given to the following:

(a) Mode of licensing teachers; (b) plan for determining the character of teachers' work; (c) number of departments in the schools; (d) how and by whom the fitness of pupils for promotion is determined; (e) frequency of promotions from grade to grade or school to school; (f) the chief means used for securing school attendance; (g) the practical results of compulsory education; (h) chief obstacles to successful results in the schools.

Mr. C. G. EDWARDS, of Baltimore, spoke as follows in reference to the question

HOW AND BY WHOM THE FITNESS OF PUPILS FOR PROMOTION IS DETERMINED.

Mr. PRESIDENT: The subject of promotions, although apparently simple, is in practice one of the most perplexing with which teachers and superintendents have to deal. There are various interests at stake, all of which must be taken into account. The welfare of the pupil is of course the paramount interest; but the teacher of the lower grade must be considered, and the teacher of the higher grade also, as well as the general good of the school regarded as an organic whole. The parent, too, will sometimes step in to complicate a question already complicated enough.

It would seem at first sight that the teacher who knows most about the pupil is the best qualified to determine his fitness for promotion, and this is the teacher of the lower grade. He (or shall I say *she*?) knows: the other can only *guess*. But in practice this opinion would undergo some modification. It would be found that teachers generally are apt to overestimate the attainments of their pupils. With the greatest honesty of purpose, they are apt to make mistakes, and the mistakes.

are almost always in the same direction. And sometimes even honesty of purpose is wanting. A pupil is promoted, not because he is competent, but because he is troublesome. It is the easiest way of getting rid of him. And he may be promoted because he has been a long time in the grade and the teacher is ashamed to retain him longer. Promotions determined by the teacher of the lower grade are apt to be too numerous or too frequent; and injudicious promotions are injurious to the pupil and may be ruinous.

On the other hand, if the promotions are determined by the teacher of the higher grade on questions prepared by this teacher, the chances are that some well prepared pupils will fail. It is a curious fact, which I am unable to account for, though it is within the experience of almost every principal teacher, that in such an examination one or two of the best pupils will fail and one or two of the worst will pass. This, however, is only a minor evil. The great objection, I might say the *fatal* objection, is that it leads to, produces, encourages, and almost necessitates cramming. The teacher below finds out or shrewdly guesses the line of examination and adheres closely to that line in teaching. You will say the teacher is not *obliged* to do so. But consider the circumstances. A teacher's ability and success are gauged by the number of pupils that he can "pass" to the grade above. This may not be fair; it is in many cases very unfair; but it is the fact; and as the teacher who studies the coming examination most closely, guesses it most accurately, and sticks to it most closely is sure to "pass" the greatest number of pupils, the temptation to "cram" is almost irresistible; and the more there is of cram the less there is of useful learning.

It thus appears that neither the teacher of the lower grade nor the teacher of the higher can be safely intrusted with the exclusive prerogative of determining what pupils shall be promoted. The objection against the teacher of the higher grade applies with equal or even greater force against the superintendent. But it seems to me to be possible to combine all three in such a way as to yield better results than can be had from any one separately.

The best proof of a pupil's having mastered one step in a series is his ability to take the next step. Indeed this is often the only genuine test. It is quite possible to teach one part of a subject in such a way as to unfit the pupil from pursuing it further. It is also possible to teach it in such a way as to yield no visible results on examination and yet to leave the pupil's mind in the best possible condition for continuing the study and prosecuting it successfully. It is this obligation, real or supposed, on the part of the lower teachers to produce some visible result, capable of being expressed in figures, that generates and perpetuates cram and is rapidly driving teaching from the field.

I would suggest, then, for the best interests of the pupil, and for the advancement of education and the destruction of cram and the encouragement of sound teaching, that promotions should be determined by

the teacher of the lower grade. I am aware that this privilege may be abused, and therefore some check must be provided. If the pupil promoted is unable to prosecute the studies of the new grade and if this inability is due to deficient preparation in the grade below, he must be remanded to that grade. But as such a course is surrounded with difficulties, it should not be taken except after mature deliberation. The two teachers should consult together on the matter, and if they cannot agree the advice of the principal or superintendent should be asked. In this way we obtain the advantage of the collective wisdom of the three persons best qualified to make a decision.

The great advantage of such a scheme as this is that it is a direct and powerful stimulus to the teacher, urging him to the best that is in him. For he will speedily discover that pupils who have learned the right use of their faculties can sustain themselves in the new grade, while those who have been only crammed are likely to fail. Self interest then works on the side of good teaching, and not, as at present, on the side of cramming. Some persons are afraid that, when the spur of examinations for promotion is removed, teachers may become careless. But the fear of having a pupil sent back is the strongest kind of stimulus, and it stimulates to *good* work and not to mere show. It is not necessary and would not be proper to give up the examinations. They would still be useful; but they would be shorn of their power to harass both teachers and pupils.

I can think, Mr. President, of no simpler or surer method of relieving teachers and pupils from the ill effects of our high pressure system than the plan I have suggested of giving to the teachers of the lower grade the power of making promotions at discretion, with the proviso that pupils may be returned if, after due trial, they are found unfit for the studies of the new grade.

Mr. SANFORD criticised the marking system, and believed that children should be examined from text books which they had not studied. Examinations are held periodically in Middletown, and the records are examined by the superintendent before promotion. It is not best to consign the matter of promotion to the teacher of the lower grade; this should be in the hands of the superintendent or competent principals.

General EATON said that the method of the examination has much to do with the place of the examination. The English have by their use of examinations made them an instrumentality of cramming; so much so that the very distinguished German school officer, Dr. Wiese, was startled to find the extent to which they had been pushed, and the result. The Germans employ examinations, but in such a way as to promote healthy growth. Great care must be used in conducting these tests. Teachers are too apt to mark pupils zero if a slight mistake is made.

Mr. SMART said that for six or seven years he had been a member of a board that has examined 120,000 teachers, 40,000 being rejected.

The same paper had been sent as a test to the ninety-two examiners composing the board in Indiana, and the valuation of the answers given, had varied greatly. With a large number of examiners changing office frequently, it is impossible to secure uniformity. This subject needs careful study.

Mr. TAPPAN stated that the method he had adopted in examining teachers, and that was found to work well, was to mark those reaching a certain percentage as passing and those below a certain other percentage as failing, while all between were to be reëxamined.

Dr. PATTON said that he found that many persons have a standard for colored students and colored teachers entirely different from the standard for white students and white teachers. Teachers sometimes mark colored pupils too high. This gives the pupils false ideas of their own attainments and of perfect recitations. There are several southern institutions whose college course is parallel with a normal course, save in a single year. These facts should be brought before the public, and especially the educational public, in such a manner as to secure a popular sentiment that would rectify these great evils.

COMPULSORY EDUCATION.

The president called upon Hon. Joseph White, ex-secretary of the State board of education of Massachusetts, to speak upon the practical results of compulsory education.

Mr. WHITE stated that practically he was pretty familiar with the question; that he had long ago reached the conclusion that a good deal of money was lost to the State and much trouble caused by reason of the irregular attendance and the non-attendance of large numbers of pupils. No school system can be successful which does not secure the regular attendance of a preponderating majority of the children.

A law was passed in Massachusetts requiring the attendance of all children of school age for at least twelve weeks in the year. Afterwards a law was passed compelling guardians to send their children to school for twenty weeks in the year, each ten weeks to be continuous. Most of the schools are taught forty weeks in the year. In the country the aim has been to secure schools of thirty-six weeks in the year, divided into three terms; that is as good an arrangement as can be made in the rural towns. The chief difficulty in the way of regular attendance occurs with reference to manufacturing establishments. In one town an arrangement was made with the manufacturing agents by which they took a number of pupils at one time and then took another class, and this plan worked very well. Mr. Marble is here, who devised one of the best systems for his own city, Worcester, and he can speak with accuracy on these points.

The result of this compulsory law is that the attention of the people of the Commonwealth is turned to the business of educating their chil-

dren, and they are made to feel the responsibility of it. This law applies to children between eight and fifteen, and is substantially carried out throughout the State.

Mr. MARBLE said that when the law was changed copies were printed and sent to the various manufacturing establishments. The requirement is that all children between the ages of eight and fourteen shall attend school twenty weeks, and that the employers of children shall never engage a child under ten years of age; also, that an employer shall have in his possession a certificate for every child employed stating the amount of school attendance the preceding year, if the child is under fourteen, or that the child is fourteen or more years of age. In the larger cities truant officers are employed; they look up children who are absent from school, and also examine the various manufactories periodically to see if children are employed contrary to law. The bare fact of the employment of children under 16 years of age without a certificate of the school committee is *prima facie* evidence, and the employer can be fined \$20 to \$50 and costs for each case. A fine of \$50 may also be imposed on the parent.

Mr. SANFORD asked what was done with the street hoodlums.

Mr. MARBLE replied that children who are found wandering about the streets and public places and growing up in ignorance are regarded as vagrants; they are found by the truant officers and taken to school. If the scholar should not attend school regularly, after two or three days he is admonished in a solemn and impressive tone of voice; sometimes this has to be repeated. At length, after a period which is to be determined by the school authorities, the boy is arrested for truancy and is sent to the truant school for a term of six months to two years. This truant school is a wing of the almshouse. In the city of Worcester, with a population of 67,000, there are 8 boys at present in the truant school. Very few of those inclined to truancy need to be sentenced to the truant school.

Mr. HARRINGTON inquired whether the boys in this school come in contact with the people in the almshouse.

Mr. MARBLE replied, "Not at all."

Mr. NEWELL asked how much truth there is in Governor Butler's statement of the illiteracy in Massachusetts.

Mr. WHITE replied that it is not becoming to criticise the "supreme executive" of the Commonwealth. The amount of illiteracy had been found years ago to be .057, and according to some recent statement it is less than .060 now, just about enough to cover those who are utterly incapable of learning—idiots, &c.

Mr. SMART said that, of course, a large proportion of the illiterates are foreigners who came to this country too late in life to derive benefit from the schools.

General EATON expressed a desire to hear from Mr. Marble in refer-

ence to Canadian immigration to Worcester and its effect on the schools.

Mr. MARBLE replied that there are 4,000 French Canadian residents in Worcester, a certain proportion of whom are permanent residents and good citizens, and certain others who come to the city for the summer and work in brickyards and similar places and as soon as they earn a few hundred dollars return to Canada. The French Catholic priest has done a great deal towards nationalizing these people. He has invited the superintendent of schools to visit the schools conducted for them, at any hour of the day. In all the parochial schools of the city there are 1,500 pupils, and these pupils receive certificates from the school committee on the same plan as the pupils of the public schools.

CHIEF OBSTACLES TO SUCCESSFUL RESULTS IN THE SCHOOLS.

In reference to this subject, Mr. NEWELL said :

In speaking of successful results from our public school system, there are really two questions involved : we may consider results in quantity or results in quality. We may inquire, in the first place, what are the obstacles which have prevented the universal spread of education throughout the country by means of public schools ? Why is the number of children who are not in our public schools so large ? In the next place, we may inquire as to results in quality. Are the pupils of the public schools as well educated as they ought to be ? If not, what are the obstacles that prevent the schools from doing better work ? Among the obstacles which impede the more general diffusion of education by means of our public schools, I mention, in the first place, the indifference of parents. The remedy in this case would seem to be what is termed "compulsory education," and it is the remedy which many educational doctors would prescribe ; but for my part I am not able to see this matter exactly in the same light as the "doctors." I have no confidence in law unsupported by public opinion. I have great doubts of the efficacy of law to make people religious, or temperate, or learned. There are cases where the state must intervene for the protection of children against their parents ; but these are exceptions. As a rule, we must assume that parents do not wish to injure their children. I would employ the missionary before calling in the constable to school.

Another obstacle to the universal spread of public schools is the disaffection of a considerable minority of our population to the whole scheme of secular education. These persons think that a school system which is exclusively secular is dangerous, and that there must be a certain admixture of religious instruction in order to make reading and writing safe acquisitions for the masses of the people. It is hardly worth while to dwell on this point. If the church will educate the children, let the church educate them. The catechism will certainly do no harm. If, however, the church does not educate the children, then it is the business of the state to step in and do the work.

It is said that nothing succeeds like success; but the greatest obstacle, in my opinion, in the way of the universal spread of elementary education is the amount of success which the public schools have already had. The apparent paradox can be easily explained. That which is common is apt to be neglected. Fifty years ago, to be able to read and write well was a distinction to mark a man in his community; he was so much more able as a workman and so much better as a citizen that all men took knowledge of him that he had been to school. But education is a great leveller; and it has levelled not only by filling up the valleys but by cutting down the hill-tops. We have more readers than any other country in the world and fewer thinkers in proportion to the number of readers. As long as it was evident that it was a great advantage to be something of a scholar, parents were anxious to send their children to school and to college, but education has now ceased to be a distinction and many wealthy parents are unwilling to send their sons to college, as many poor parents are indifferent about sending their children to the common school.

In the next place I will say that our public school system has not that elasticity and that adaptability, that power to meet emergencies, which will produce rapid and permanent results. Go back for half a century and you will find that our schools were organized for the purpose of supplementing existing deficiencies. A large number of people who were living in comfortable circumstances sent their children to private schools, but there was a great mass who got no schooling at all. The new public schools took in these neglected masses and gave them an elementary education. At first the course of instruction was very elementary indeed, but by degrees the standard was raised; the public school tried to be as good as the private school; it succeeded; then it tried to be better than the private schools; it succeeded; but the very success tended to remove it further from the very class of children for whose benefit it was originally established. Theoretically, the public school is for all; practically, it is conducted with less regard to the very lowest stratum of society than is desirable.

Our public schools are now the best schools to be found, but they are surrounded by a set of rigid rules, customs, and traditions which have a tendency to keep out the very children that these schools were established to educate. Take one of our ordinary rules, that the child who has been absent from school two days in any week or four days in any month shall be suspended—that is to say, be driven out of school. Because for some reason or other he has not been able to take the *full* advantage of the school, our rule says he is to have no advantage at all. Surely the proper function of the school is to gather the children in rather than to drive them out. I say, then, in a general way, that our school systems need to have a little more adaptability to the conditions in which we are now placed. Much injury results from the dissociation of education and labor under our present system, two things which

God has joined together and which man ought not to put asunder. I believe that a child needs to learn to drive a nail just as much as he needs to learn to read a newspaper. In some way this deficiency must be remedied, if elementary education is to be made universal.

In the second place, looking to the quality of the education given in our public schools, the great obstacle to perfect success is the lack of trained teachers. Not one in ten of the teachers of the United States has received any special education or training to fit him for his business. Those who are long enough at work learn something; some of them learn very little.

And then there is another lack, the want of skilled supervisors who might, to a certain extent, make up for the lack of trained teachers. Here and there we have a competent and well trained superintendent, but often that trained and competent superintendent is neutralized by his committee, and, instead of being able to do what he knows is right and good and useful, he has to spend his days and nights in trying to do just as little harm as possible. The very selection of our school books is often left to men barely capable of reading one of them from beginning to end. If any good results in the near future are to be achieved in connection with our public school work, it must be by leaving the practical management of our schools to men who are experts in their profession. It is as ticklish work as ballooning, and requires just as much nerve as to attack a battery.

I will mention only another obstacle; it is, perhaps, not so much of an impediment after all, for it sometimes does as much good as harm. I refer to what I may call the destructive criticism that meets us in our newspapers and in some of our periodicals and other publications. No school man objects to criticism; he welcomes it. No school man objects very strongly even to unfair criticism; provided that the facts are accurately stated, we can make allowance for the wrong deductions. I refer to the kind of criticism which says "this is all wrong" and never gives you a hint as to how to make it right—the criticism of Gail Hamilton, for example, the criticism of Richard Grant White, and of General Butler. Your high schools, they tell you, are all wrong; but nobody has ever proposed to do away with the high school. You are cramming the children with useless technical knowledge, they say; but they do not tell you how to avoid the cramming. This is the work which is good for pulling down and not for building up. I can say as hard things about our public school system as, I think, any man here, but then I hope I have something to suggest in place of what I have criticised.

Having dwelt so largely on the obstacles which our public school system has to contend against, I may say, in conclusion, that I do not consider them, on the whole, to be very formidable. They will not stop the car of progress, and they can hardly retard it very much. Notwithstanding the indifference of parents, the opposition of the church, the rigidity and inelasticity of our system, notwithstanding our lack of

trained teachers and competent supervisors, the public schools are making progress and will continue to make progress. I have an abiding faith in their ultimate and permanent success.

Mr. PICKETT enforced the necessity of the proper inspection of schools, and Mr. WHITE spoke of the excellent results accomplished by women as members of school committees in Massachusetts.

CONCLUSION.

Mr. JONES introduced the following, which was unanimously passed:

Resolved, That the press of Washington be tendered the thanks of the department for the full reports given to the public.

General EATON called attention to the Holland Exhibition, and expressed a hope that American education would be well represented.

On the motion of Mr. MARBLE, the department then adjourned to meet with the National Educational Association at Saratoga on the 9th of July.

