AN

OUTLINE

OF A

COURSE OF ARCHITECTURAL INSTRUCTION.

BY

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PRINTED FOR PRIVATE DISTRIBUTION.

BOSTON:
PRESS OF JOHN WILSON AND SONS.
1866.
NOTE.

The following paper was read before the Society of Arts of the Massachusetts Institute of Technology on the evening of Dec. 21, 1865, and is now printed, substantially in the form it then received, in furtherance of the objects had in view in its preparation. Some portions of it had previously been read in New York, at a meeting of the American Institute of Architects. It is hoped that in its present shape it may not only serve to make the character of the proposed Course of Architectural Instruction more widely known, and better understood, than it could otherwise be, and obtain for it the favor and support of the public and of the profession; but, especially, that it may be the means of securing for the scheme in advance the criticism to which it must at some time be subjected, but which otherwise may come too late to be availed of. The architects, and others, to whom this pamphlet is sent, will accordingly do a great kindness to the writer, and through him to the School, if they will favor him with the opinions they may form in regard to the scheme of instruction here suggested, or in regard to any of its details. Approbation and disapprobation are equally necessary, and will be equally welcome.

36, Studio Building, Boston,
February 1, 1866.
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AN OUTLINE
OF THE
COURSE OF INSTRUCTION IN BUILDING AND
ARCHITECTURE,
PROPOSED FOR THE SCHOOL OF THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

The object of the Massachusetts Institute of Technology, in its threefold organization of a Society of Arts, a School, and a Museum, is the application of Science to the Useful Arts. This object it proposes to effect by means of Technology; that is to say, by the discovery, collection, and dissemination of technical knowledge,—a knowledge of the processes of the arts which experience and scientific inquiry most approve, of the best methods of attaining in each of the useful arts the best possible result. The best way of doing things is, in short, its end and aim. It is the purpose of this paper to explain, in general terms, how the School, which is now just entering upon its career, proposes to apply the principles and ideas of the Institute to the most ancient of arts,—the art of Building.

In thus inviting attention to a scheme which is not yet in operation, and all the details of which are still under discussion, it is hoped not only to bespeak at the outset public favor and support, but to avail, in perfecting our plans, of the friendly advice and suggestion of the whole body of builders, architects, and artists, upon whose countenance and co-operation it must ultimately rely for its success,—a criticism of which, from the novelty of the undertaking, it stands particularly in need.
The general character of the proposed Course of Building and Architecture is thus set forth in the programme of studies printed in the recently published catalogue of the School: —

"The general studies of the first two years afford such a knowledge of Mathematics, Chemistry, Physics, and Drawing, as will best enable students to pursue this course to advantage. Other students will, however, be admitted to it as special pupils; and it is hoped that practising draughtsmen, whose opportunities of study are limited, will avail themselves of those here offered. The courses of study will be extensive and thorough; but their object will be to furnish the instruction and discipline that cannot be obtained elsewhere, rather than to cover the whole ground of architectural study. Much of the ordinary detail of work must necessarily be left for the students to acquire in architects’ offices. The course will, however, be practical, as well as theoretical; and will embrace the scientific study of construction and materials, in connection with the courses of Civil Engineering, as well as that of composition and design, and of the history of the art. It will consist chiefly of a series of projects or problems, in Construction and in Design, to be worked out by the student. These will be illustrated by lectures upon the theory and practice of the art, pertinent to the subject in hand."

"The students will have exercises in Drawing, in modelling in clay and plaster, and in making patterns, models, and working drawings. The elements of Lithography and Photography will be taught to such as desire to learn them."

Such instruction as is here proposed is not now anywhere offered, it is believed, within the limits of the United States. While almost every other one of the important branches of applied science has multiplied seminaries in every part of the country, the art of building, upon which more money is spent, and more money misspent, than upon any other, is handed down from generation to generation by personal tradition alone. In former times, the system of apprenticeship served a certain purpose in preventing this work, which especially needs to be done with deliberation, learning, and
reason in design, from coming under the sway of haste, ignorance, or caprice. But the system of apprenticeship has disappeared, as being unsuited to the temper of the time; and no other sufficient means of education has yet taken its place.

Meantime the building profession is suffering from another cause, — the isolation of its members; the nature of their work bringing architects in contact only with their clients and their mechanics, not with each other. Merchants meet upon change, and lawyers in court; clergymen and physicians have stated means of seeing each other, and keeping up with the times. Architects never meet; and the profession presents the singular spectacle of a score of men, living and working within a stone’s throw of each other, and as much allied among themselves as they are separated from the rest of the community by taste and education, but leading each the life of a hermit, and not only cut off from the stimulus of personal intercourse, but, though all are engaged in the solution of the same problem, never comparing results, or profiting by each other’s experience.

Setting aside then, for the present, any question of Fine Art, it will not be denied, that, regarded merely as one of the useful arts, the position of the art of building in this community renders it peculiarly open to the good offices of the Institute. Here, if anywhere, is there need of having the simplest, cheapest, and most enduring ways of doing things found out, and when proved made public, and of having workmen trained to skill in those methods. The best ways of using the common materials of building, of discriminating among them and estimating their quantity and cost; still more, the best ways of distinguishing and employing the materials that are not so common, — are matters on which every builder and every architect needs full and accurate information. And all need the same; namely, the best that can be had. And not only in matters of construction, but
in the whole detail of building affairs, those who are the
most experienced in them are the most ready to complain of
the want of system, of recognized forms of procedure, of well-
digested and approved methods.

This want is a common one in every branch of work, and
is natural to a new country; but it is here particularly injuri-
ous. A business which unites upon a single piece of work so
great a variety of separate trades, particularly needs to have
the resulting friction and collision abated by a common con-
sent in authorized modes of procedure. But what authority
is possible in such a case but that of absolute excellence?

Every one engaged in these affairs has, of course, ways of
his own that answer his purpose well enough; and almost
every one has some clever devices of his own, particulars
which he has for some reason worked out for himself, on
which he specially prides himself, and knows he cannot be
surpassed. One man has a brief and neat way of getting
out his quantities; another, for jumping at his sum-total;
another has an admirable system in his specifications; another,
a convenient trick in perspective, or in making working draw-
ings. But, in most particulars, every one knows that there
is room for improvement; and he would gladly go about
and exchange ideas with his fellows, if time and opportunity
offered. But time and opportunity do not offer. Architects
are not, as we have seen, brought together in their work;
and men sufficiently engaged in affairs to make their experi-
ence worth exchanging, have no leisure to give to societies
of mutual improvement, and to the reduction to a system of
their fragmentary wisdom. If their young men can pick up
any thing new outside, well and good; so much the better for
all concerned: but it must lie with them. They would gladly
see things improve, but cannot undertake to do any thing about
it themselves. This is, I venture to say, the attitude of
every architect, every builder, every mechanic in the city, who
has any claim to character and intelligence. They agree in
deploiring the want of superior methods, established by a
general conformity; and I am greatly mistaken if capitalists
and men of business do not often find cause to share in their
regret.

This is just the state of things for this Institute. The
trouble is technological; there is a want of system and
method, and of means for a general collection, and a general
diffusion of their results. It seems possible to find in this
School the means both of collecting and of disseminating this
knowledge. Without going into detail, or pretending, in-
deed, that the details of the scheme are yet worked out,
which they are not, it is enough to say, that the School may
perhaps be availed of, not only to give to draughtsmen
and students a sort of training they cannot easily find else-
where, but it may act through them as a sort of professional
exchange for builders and architects. All the School need
do is to separate and classify the topics that occur in the
practice of the art, and give them out, to the classes, as sub-
jects of study and investigation. Such are the principles and
processes of the various mechanical arts employed in building,
the estimating and surveying of work, and the organization
and superintendence of workmen, the keeping of accounts and
regulation of payments, the drawing-up of specifications and
contracts, and the customs which regulate the intercourse of
architects with their clients and with the mechanics they em-
ploy, and the laws upon which these customs ultimately rest.
The more strictly scientific subjects of lighting, heating,
ventilation, and acoustics would, of course, be included. On
many of these subjects it would be desirable, and it would
probably be found perfectly feasible, to have special lectures
given in the School by experts in them. The regular pu-
pils within its walls would proceed to collect, under the
guidance of its officers, the best information that can be
obtained from the accredited sources; while the pupils
attached to the offices in the town would lay them under
contribution for the fund of special study and personal expe-
rience peculiar to each. All would use every opportunity to
increase their resources by observing work actually in progress, and by conversing with mechanics. Upon a comparison of results, the particular subject in hand would probably prove to be pretty well exhausted; at any rate, all the questions that were not answered would be very distinctly asked, and their discussion would point the way for a really advanced research. A method of study more edifying for the students, it would be difficult to name; while for the profession it would establish at once a sort of architectural exchange, or clearing-house for the interchange of knowledge and skill: only, instead of a striking of balances and a payment of trifling differences, some of gain and some of loss, each would carry away what all had brought, while the whole would remain behind. The sum of available knowledge would be increased a hundred-fold. The offices would be enriched by the returning streams, and the School would accumulate, from year to year, a priceless treasure of traditional lore.

Such studies and researches would make the student more conversant with every variety of the practical and business affairs with which he is expected to be familiar, than he could probably otherwise become, except by a personal experience in each. But life is too short, and the range of studies too extensive, for so slow a schoolmaster. A certain amount of experience is of course necessary, at last, to transform the student into the man of business: this he must obtain while serving as an assistant or draughtsman in an architect's or builder's office; and the more complete his previous theoretical knowledge of his subject, the more rapid will be his progress in this practical schooling. Enough experimental acquaintance with it to make these studies and researches intelligible and really instructive can be gained from the systematic study of buildings actually in progress, from laboratory manipulations, which should be made to embrace as great a variety of work as possible, and especially from the collections of illustrative drawings and models which must form an essential part of the equipment of the School.
Meanwhile, the courses of Chemistry, of Geology, and of Engineering, which are open to these classes, afford a scientific discussion of the nature and strength of the materials used in building, of the stability of structures, of the principles of masonry and carpentry, and of the theory of trusses, beams, and arches. This various knowledge is just what is needed in the solution of the problems or examples in construction. It is proposed to assign to the students as a subject for study some definite structure in brick, stone, wood, or iron, and call upon them to prepare working drawings, full specifications, estimates of quantity and cost, and calculations of weight and strength, accompanied by a general description of the work. These programmes should not be too difficult. A good many short exercises of this sort are more edifying than a few very long ones.

If the School were organized to impart this discipline and this information, and the work were well and sufficiently done, its pupils would be welcomed in every part of the country, and its beneficial influence would be felt on the profession wherever they penetrated. The profession is, at present, in the hands of mechanics, many of whom are first-rate; of contractors and superintendents, who are mechanics with a talent for affairs, and many of whom take the name of architects; of architects proper, few of whom have an adequate training in the higher branches of their calling, while they are, of course, vastly inferior to the others in a knowledge of the lower branches; and, lastly, of architects’ assistants and draughtsmen. It is upon these last that the whole system turns; and in any community the character of the work done depends, in a great degree, upon their attainments and qualifications. Any prosperous architect must leave nine drawings out of ten to be made entirely by his subordinates, under supervision, of course, more or less minute. If they are ignorant, the work suffers. Even the best we have require an amount of overseeing, which
prevents the architect from giving to his own proper work, to that elaboration and perfection of his design which no one else can do for him, the time and attention, the unincumbered leisure and mind at ease, which are needed for his anxious and delicate task. And it is not only or chiefly in the office that the architect suffers for want of competent aid. He needs subordinates competent to superintend the execution of his work, enough of mechanics to tell good work from bad, and make sure that every brick and every stick is the right thing in the right place; and enough of draughtsmen to understand and explain drawings, and to relieve their employers of a considerable part of the strictly architectural superintendence. The want of such a coadjutor has done more than any thing else to bring professional architects into disrepute, in this country, and to throw the work that should be intrusted to them into the hands of merely practical men, people naturally enough caring more to have their houses well built than to have them well designed, if they can have but one. It has of late been attempted to avoid the difficulties of either alternative, by giving buildings in charge of contractors, and employing architects merely as a superior sort of draughtsmen and clerks, to make out the drawings and papers they require. This system affords the employer a guarantee of value, and has obvious advantages over the old system; but it is very injurious to the future prospects of the profession, not only in that it discourages first-rate talent from entering it,—since, by subordinating the architect to the contractor, it diminishes the dignity and the emoluments of his calling,—but in cutting him off from a knowledge of practical details. The English system of employing a Clerk of Works has all the merits and none of the defects of this one, and is undoubtedly the most satisfactory solution of the problem. But if the general adoption of the English system in this country is impracticable, as it has hitherto proved to be, the best substitute for it is probably to be found in the employment of such highly trained assistants as the School proposes to furnish.
In regard, then, to the immediate result and practical purpose to be held in view in organizing this School, it seems to be not only especially consonant to the general scope of the Institute, but also best calculated to meet the practical needs of the community, to lay out, in the first place, a course of an eminently practical character, giving diplomas or certificates, at different stages of progress, to third-class, second-class, and first-class draughtsmen; ranking these last as in-door or out-door assistants, according as they distinguish themselves in one way or in another. Every opportunity and encouragement should be given to draughtsmen already at work to avail themselves of partial courses. They would probably, by and by, submit themselves for examination as they found that our diplomas had a value in the market. Every care should of course be taken to give them reputation, by making the instruction sufficient and the examinations severe, both upon pupils and teachers. No degree should be given without a satisfactory appearance in all branches, and no higher diploma should be awarded until the lower had been won.

I believe that competent assistants and well-informed and trustworthy draughtsmen, furnished with properly graduated diplomas of established reputation, would find their services in great demand; and that a school which should establish a name for turning out men who knew thoroughly what they claimed to know, men who would not require daily instruction in the rudiments of their calling, would do more than any other possible agency to raise the character of our architecture. It would be for them to determine, whether, having gone so far, they would go a step farther and complete their work, and, remaining in the School, add an artistic and professional education to this practical training.

Of the principles and methods to be adopted in this department of study, I will say a word presently; but I think it is important, that, from the beginning, a high tone should be
maintained, recognizing at the start all the possibilities of ultimate attainment, and giving at each stage of progress the aesthetic and artistic training suited to it. I would make it a liberal culture, as far as it went, in every case; and would not cut any one off from future progress, by withholding the beginnings of the best things, however humble his abilities or modest his aspirations. I would enable him who stopped at the lower landings at least to appreciate the height above him, and understand the supremacy of those who attained it.

Enough has been said, I think, to explain the work we have undertaken, and the principles on which we hope to carry it through.

To the student of architecture, and to the builder's or architect's assistant or draughtsman, it proposes to open an opportunity of systematic study. In this, as has been shown, it is intended that they shall rely mainly upon their own and each other's observation and research for their information; and a purely didactic method will be adopted only upon topics whose subject-matter is beyond their reach. By keeping them in constant contact with facts; giving them, so far as may be, the real thing instead of statements about it; letting them, as the naturalists say, handle the specimens for themselves,—we may hope to excite a vigorous and wholesome intellectual action. In this substitution of manipulation for reading, of a practical for a theoretical knowledge, there will doubtless be a great saving both of time and of mental labor; and, though the ground to be gone over is extensive, and is indeed practically insuperable by the present methods of training, so that nobody pretends to know half that he knows he ought to know, yet—such is the effect of order in chaos—we may hope to do an excellent work in a reasonable length of time. The completeness with which the School can attain to its ideal depends, of course, in great
part, upon its general resources and the special means placed at the disposal of this department. It can do an excellent work with moderate means; but its usefulness obviously depends very much on the scale of its undertakings, and these are limited only by its resources.

Enough has, I hope, also been said to show the value of this purely practical course, both to the building professions and to the community, and to indicate its claim to co-operation and support.

To the architect and to the builder, it promises a superior class of assistants and coadjutors; relieving them, meanwhile, of a good deal of the labor and responsibility of training their young men themselves; and affords a source from which temporary assistance can at any time be obtained. It moreover proposes, by and by, to give them the benefit of an invaluable accumulation of useful information,—precedents, statistics, examples, and methods,—classified and arranged in an accessible and available shape; a work of the greatest utility, but one which is, in its very nature, so extensive that no private person can undertake it. It also promises to give them at once, through the medium of their assistants and pupils, the benefit of the best ideas of the time. It asks in return a cordial co-operation, and the advantage of their friendly criticism and practical suggestion.

I will not argue the point, that they will find their account in so doing; that they will gain more than they lose, by thus, in a measure, having all things in common. Architecture is a liberal profession, and its members have an enlightened interest in the advancement of its standards. They are intelligent enough to understand, that, in this age of the world, there can be no rational progress without a free trade in ideas. If they were not, their co-operation would be of but little service to an institution of learning.

To the community at large, it promises the advantage of having some influence at work to introduce uniform and im-
proved methods in the most important of the useful arts. Business men, who know the saving there is in doing things uniformly and in the best way, will appreciate its value.

Thus far with the useful art; thus far we have had to do with Building proper, and with the instruction we propose to give in its methods. But we have to take up the subject also in its relations to fine art: the School cannot, if it would, avoid the consideration of Architecture proper, into which building naturally grows as it assumes the beauty, first of fitness, then of expression, then of grace.

Architecture is indeed very much like literature, not only because it has the same curiously ambiguous character as language, being partly a matter of history, partly of natural history; half a natural product, half a product of human will; both being founded in the immemorial past, and exhibiting in their development the same subtle influences of race and climate, similar laws of tradition and derivation, a constant resolution and recombination of elements, all controlled by aesthetic laws, which spring partly from the nature of things, partly from custom or caprice,—but also because, in an essential characteristic, architectural work is like literary work. Both writing and building range all the way from mere work of necessity, the satisfaction of every-day requirements, up to the pure expression of abstract sentiment, where the form, not the function, is all in all. Upon this lofty level, this Parnassian height, the home of genius, literature and architecture become poetical: they are transfigured, and mingle on equal terms with painting, sculpture, and music. But they differ from the other fine arts, and they differ from the merely useful arts, in this, that there is in each an intermediate region, above the reign of mere utility, though still mainly utilitarian; and below the realm of poetry, though still thoroughly artistic. This middle ground is in literature the field of liberal education, and in architecture the field that we pro-
pose to occupy. It is the region of good sense and good
taste, of knowledge and skill, of intelligence and refinement,
and of talent, perhaps, rather than genius. The fruit of its
cultivation is in literature a prose style, clear, graceful, and
intellectual; and a style in building, simple, elegant, and ra-
tional, suited to the best requirements of every-day life.

In a certain sense, indeed, Architecture may be called the
prose, as sculpture and painting are the poetry, of art. Its first
principles are truthfulness, good sense, and perspicuity. In its
higher walks, it grows eloquent and rhythmical; highly poet-
tical in form and in purpose; aiming at the expression of senti-
ment more than of use, in a purely oratorical spirit: but, even
here, intelligence and sound reason exert a controlling influ-
ence, and elsewhere they rule with absolute authority. Con-
siderations of method, order, form, clearness, precision, and
sobriety, are what make a good working style, both in writing
and in building; and they demand the same qualities in the
workman,—a quick and sensitive intelligence; an open, flex-
ible, and cultivated mind. In both, the higher paths can be
trod by genius alone. That work can wait till genius comes.
But there is in both a great and indispensable work, a work
that cannot wait, a work which every-day necessities require
to have done somehow; and it is of the highest advantage to
the culture of every community, that in this work, both of lit-
erature and architecture, the best methods and ideas should
everywhere prevail.

It is in establishing a high critical standard of performance
in work of this sort, that, as I have said, educational institutions
find their proper vocation. And it is as true here, when we
are treating of style, as it was just now when we were speak-
ing of the mere utilities, that, in the nature of things, an or-
ganized institution has, in this work, altogether the advantage
of private enterprise. This thought has been recently de
cloped, in its literary relations, with so much brilliancy and
candor, by a critic whose name is identified, in this com-
munity at least, with the best criticism of the day, that it
is already familiar as a household word. Almost every consideration which Mr. Arnold brings forward to illustrate the advantage to be derived to a national style from the influence of Literary Academies, applies almost in terms, and with a peculiar appositeness, to an Architectural School. The academies of which he speaks are indeed institutions like the French Academy, a sort of literary hierarchy: the school we have in mind is a collection of neophytes. Both, however, tend alike to establish a high standard of performance, and may, so far, be spoken of in identical terms. I cannot deny myself the pleasure, in further illustration of this, of transcribing a few sentences from Mr. Arnold's essay:

"An institution like the French Academy—an institution owing its existence to a national bent towards the things of the mind, towards culture, towards clearness, correctness, and propriety in thinking and speaking, and in its turn promoting this bent—sets standards in a number of directions, and creates, in all these directions, a force of educated opinion, checking and rebuking those who fall below those standards, or who set them at nought... It is not that there do not exist in England, as well as in France, a number of people perfectly well able to discern what is good in these matters from what is bad, and preferring what is good: but they are isolated; they form no powerful body of opinion; they are not strong enough to set a standard, up to which even the journeyman-work of literature must be brought, if it is to be vendible. Ignorance and charlatanism, in work of this kind, are always trying to pass off their wares as excellent, and to cry down criticism as the voice of an insignificant, over-fastidious minority: they easily persuade the multitude that this is so when the minority is scattered about as it is here; not so easily when it is banded together, as in the French Academy."

It remains, then, for us to consider how we had best take up this instruction in Architecture proper, so as to inculcate sound and serviceable ideas in regard to architectural composition and design. There may be good building without
it; but there can be no good architecture unless it is taught, and taught well. The question is twofold: what shall be taught, and how shall the instruction be given?

The first part of the question is already answered in general terms. The thing to be taught is the theory and practice of architectural design; and this is to be learned by studying its history, which everywhere illustrates its principles, and its principles, everywhere illustrated by its history. These principles have an independent existence and an abstract value; they are unchanged through all the changes of the past; and it is by their light, not by following the precedents of bygone ages, that we must hope to find, for the new and strange problems of the future, the simple, truthful, and characteristic solution they demand. Is there any scheme of instruction that can contemplate at once both aspects of the subject, and do justice to each? What course of study can satisfy the legitimate demand of the student for such a knowledge of the past, as shall fortify him with all the experience of the race, and, at the same time, leave him free from prejudice and pedantry, and the prestige of authority, to apply these principles simply and frankly to the work of the future and the present?

It is perhaps not impossible to meet, or rather get round, the difficulty; the difficulty of discriminating nicely between memory and invention, between pedantical learning and wholesome knowledge; the forbidden work of copying, and the legitimate and indispensable work of imitation, by keeping the two things as far apart as may be to start with; and not letting students enter the region where the difficulty and conflict are felt, until they are somewhat robust and mature through practice and experience. They might carry on together an a priori and an a posteriori course of study; alternating, so to speak, the subjective and the objective, the synthetic and analytical methods, nature with historic art, the future and the past. There might be one course of design founded on general principles,—the laws of harmony
and proportion, the study of natural forms and their conventional adaptation to design, of the contrast and gradation of color and form, and the expression and composition of abstract lines. This would be the aesthetic training, and the useful should accompany it; the class being set to design barns, sheds, cottages, country-houses, railroad stations, markets, &c., where they would be able to keep strictly to the requirements of convenience, and need have no temptation to indulge in the styles of the past; relying for effect only upon outlines, masses, light and shadow, or such other means of ornament and aesthetic expression as their other a priori studies might suggest. I think that by keeping to a small scale in the drawings, and not paying more attention to details than the state of progress warrants, something might thus be done to encourage a habit of simplicity and frankness in the treatment of architectural problems,—a habit of working up from the requirements of the problem to the ensemble, and thence to the detail, and not vice versa, which, if it could obtain, would put new character and expression into our building, and could not fail to produce the only originality of style that is possible or desirable.

Such a course is, I know, open to the reproach of attempting to reconstruct civilization out of abstract ideas, and of trying to make students learn to design buildings out of the depths of their own consciousness. It is not impossible that serious objections are to be urged against it on theoretical or practical grounds, and it should of course, before being put in practice, be subjected to every test which criticism can bring to bear upon it.

These inventive studies I would alternate with other studies purely acquisitive; the deductive and synthetical method should give place to the inductive and analytical; the class now taking up a purely historical course, and discussing one by one, in their order of development, all the great styles of the past. They should be critically examined to see what they have to contribute in illustration of permanent
and universal principles: but, at the same time, they should be studied as an expression of the age which produced them; and whatever assistance literature and scholarship and aesthetic and philosophical criticism can give in understanding the age, and discriminating the thought and feeling really at work in its architecture, should be afforded the student. At least, he should be encouraged to inquire not only what was done, but why, and the proper means of answering the question pointed out and set within his reach. Meanwhile, I would have all his work,—drawing, sketching, water-colors, modelling, carving, whatever might be in hand,—directed to the same channel; and if, for instance, Egypt were in turn, I would have nothing but Egyptian work; so that he might, if possible, breathe the very atmosphere of that civilization, and sympathize with its artistic manifestation. And, while sketches and memoranda were accumulating (and, throughout the whole, the constant employment of sketch-books and notebooks would be a matter of course), I would have some good example of the style well drawn out, each student perhaps taking a different building; and, when the materials were pretty well in hand, I would have all make a design upon a subject assigned,—a restoration, or perhaps a simple original building, not a modern building in the ancient style, that is mere masquerading, but an ancient building, such as the ancients might themselves have built if they had chosen. And now the study of lines and mouldings, and masses and sky-lines, and geometrical design, and nature and the conventionalization of nature, would all come into this historical chapter, as matter, not now of experiment, but of experience.

And it should be an object of especial care in these historical studies to distinguish the moral from the aesthetic qualities of ancient work, as is not always done in architectural criticism. There is a great deal of work, especially early work, which is so natural and truthful as to be an absolute expression of the civilization which produced it, and of the tradi-
tions and exigencies by which it was shaped, affording most interesting and instructive examples of the spirit in which the work of an unsophisticated age is done. But it may be all this, and still be quite destitute of artistic merit; it may illustrate none of the principles of composition or design. On the other hand, a great deal of work, especially late work, is deficient in these qualities, but full of delicate feeling, illustrating these principles in every line. The best work of the best ages has both kinds of excellence; but it is important for criticism to note, that truth may exist without beauty, and beauty without truth, and not to praise or condemn, in either respect, without raising a question as to the other.

The effect of these studies would of course be felt when the students returned to the other tack. They would not be able to look with unprejudiced eyes, and their reasoning would show a bias. All nature would now suggest Egyptian types; the most obvious treatment of natural forms and the most expressive turn of abstract lines would seem now to be the Egyptian. Very well. No harm is done, if they are adopted because they seem to be natural, and are not intentionally borrowed; and against this borrowing or stealing or using the admirable remains of other ages, I think the subjects of this discipline would have two safeguards. In the first place, their habitual attitude would be hostile to it, the contrary principle of working altogether in the present in modern work being made a fundamental principle; and, in the second place, the natural and inevitable impulse to copy would find a legitimate channel in the prescribed task of restoration, and there would spend its force. After studying the remains of any style, one cannot but desire, in proportion as he is possessed of its spirit, to manipulate for himself the elements of which it is composed. If he has no good use to put them to, he will put them to a bad one; just as in the enthusiasm which followed Stuart and Revett's researches, all Christendom blossomed out with Doric banks, mints, and custom-houses; and we have to this day little pine Parthe-
nons all over New England. Even now, our country carpenters, who retain the traditions of fifty years ago, will work a hyperbolic moulding upon the gutter of a barn, and carry it up the gable after the manner of the Athenians. But the exercises in restoration, or antique design, beside testing and fixing the student's knowledge of it, afford a legitimate outlet for this enthusiasm; and there only remains the spirit of the old time, giving life, not the dead form. The student may imitate,—he cannot help doing so,—but he will not copy.

It seems to me, that, by the time he gets out of his cottages and barns up to his markets and warehouses, everything in the historical styles he has meanwhile been studying that is living and true, really germane to his own life, that is to say, really good for this nineteenth century, will have grown plastic in his hand; these old seeds will take root in his mind, if there is in it any richness of earth; and, the ancient stock entwining with the modern, the instinctive and natural tendencies of his fancy will rather be strengthened than stifled; so that his public buildings, when he comes to them, may reasonably show a mind at once full and free, and a method learned without being pedantic, eclectic without patchwork, simple and original without meagreness or caprice.

To say that such a result supposes, on the part of the pupil, talents of no common order, is true: indeed, only the man of genius could carry such a system to its final success. But this is only saying that the future problem of architecture is one which it requires the highest order of mental power to solve, which nobody would deny. What I would claim for such a system of instruction is, not only that the best minds might be subjected to it without injury,—a thing that can be said of but few of the methods of instruction now in vogue in any department of learning,—and that their best and most sensitive capacities would be by it fostered and generously developed; but that it would afford a whole-
some and manly school for the development of any mind, of whatever kind and degree of power, warming into activity every germ of originality, and giving to every variety of talent a fair field for its exercise. That it would require a high order of ability to administer such a scheme so as to make the most of it, is also true; but a good system is one which, while it admits of the employment of the rarest ability in carrying it out, and indeed contemplates taking advantage of the best talent that may offer, yet does not demand for its satisfactory working much more than common intelligence and fidelity. I suppose this is as true in education as it is in government.

The remaining question — how all this instruction shall be given — depends for its answer upon the appliances the Institute can bring to bear upon it, and upon the condition of the profession in this community. A great deal of teaching would have to be given within the walls of the School, either by the regular corps of instructors, or by persons invited, from time to time, to give special courses on special subjects. History and antiquities admit, and indeed require, that whatever special learning there is in the community shall be availed of. Certain topics would require to be treated by experts, and the Institute would have to call in, from time to time, the aid of the best men the community affords to speak with authority and inspiration upon them. But very many of these topics, even those most difficult to discuss, are susceptible of perfectly satisfactory treatment, by means of what I may call a merely literary method. The geometrical theory of proportions, for example, is a subject upon which a great deal has been said by able men, and which constantly comes up for discussion without any conclusion being reached. It is too important to be passed over in silence, while not one man in ten thousand could be expected to have anything to say on the subject worth hearing. But any intelligent person, by collecting and collating what has been said upon it, discover-
ing the points of agreement and of contradiction among his authors, would be able at the conclusion of his studies to form a just opinion on the general question, and to convey to our classes a greater amount of useful information upon it than ever was imparted; and the same may be said of many other topics. Literature is full of fragmentary discussions of great value, but they are as much out of use as if they had never been printed. It is in the power of the School, by the use of this merely literary procedure, not only to compensate itself for the absence of men of original genius, in those walks where men of genius are not readily to be found, but to do a great and much-needed service, by bringing into use these hidden treasures of thought and criticism.

The School would, of course, prescribe the work to be done, month by month; give out the problems to be solved, or programmes to be fulfilled; fix the times and conditions of examinations, and appoint the examiners. The principle that instructors should not sit in judgment upon the work of their own pupils should be strictly adhered to. It would probably be found perfectly practicable to obtain competent juries among amateurs and architects not in any way connected with the School. The great stimulus to be derived from the exhibition of the competitive drawings, and the publication of the names of the successful men, should not, of course, be foregone. Whether it is best for the pupils to do their work in the School, under the supervision and instruction of the professors, or whether they had best put themselves under the instruction of the different architects in the town, and come to the School only for lectures and examination, and to receive the programmes of the work they are to do, is a question of administration which has been variously answered in the schools of art abroad, and may here be left for future decision. The latter method is that of the École des Beaux Arts; and many of the architects in Paris have ateliers expressly devoted to their pupils, who pursue, under their direction, the studies prescribed by the school, or qualify
themselves for admission into it. A student in the atelier of M. André, thus describes to me the details of this system:—

"Once a month we assemble in the loges of the School, and there find programmes which are to be 'rendered' in a month, six weeks, or two months, according to their difficulty. At the end of the day, we leave in the School an esquisse, or sketch of our idea of the way in which the requirements should be met, giving plan, section, and elevation in the simplest forms possible, merely indicating the motif. Indeed, it is quite an art to know how to indicate an esquisse in such a manner as to fulfil the requirements of the programme, and yet leave the most ground for changes in studying it out. You leave your original sketch in the hands of an officer of the School, and carry home with you a copy or tracing. When the projet is handed in, the esquisses are compared with the rendus, and those who have changed too much are put hors de concours. The other projets are judged and receive mentions, half-mentions, and, in the first class, medals of different degrees. In the second class they only give medals to projets of construction of superior merit. The esquisse carried off is shown to the patron, who directs your studies upon it, indicates the changes, and tells you, from day to day, his opinion of what you are doing.

"Half-way between the esquisses and the rendus come the esquisses-esquisses, so called because they are all done in one day, completely rendered. You are allowed twelve hours to do them in; and they must be completed, colored, and washed in ink, by nine o'clock. They are capital exercises, and I would give one once a fortnight if I had pupils. The programmes, of course, must be short, and the scale demanded be rather small. The system of the School is concours. Concours for architecture, concours for construction, perspective, mathematics, descriptive geometry. You pass from the second class to the first by means of concours; and, in fact, emulation is the watch-word... All the work, except the esquisses, is done in the atelier. There are courses of lectures at the School; but the real work is done at the atelier."

This example shows how the whole body of architects in
the city may be made to co-operate in the work of the Institute, without embarrassing it by any official connection.

The methods pursued in the Kensington schools in London are, I believe, entirely different; the pupils receiving their instruction from the professors in the school, and doing all their work within its walls. The changes made in administration of the École des Beaux Arts by the decree of Nov. 13, 1863, contemplate an approach to the English system, so far at least as to establish a certain number of ateliers within the school. I do not know all the reasons for the proposed change, nor do I know whether this provision of the decree has been carried out in practice.

I have not been able to learn any thing, but its name, of the new École Centrale de l'Architecture.

Of the administration of the English Schools I have found it difficult to learn any thing in detail, either in regard to that at Kensington, or those established under the patronage of the Royal Institute of British Architects and the Architectural Association. I have seen, however, a programme proposed by the Institute for test examinations, to be voluntarily undertaken by draughtsmen and architects who may desire to establish their claim to public confidence. The range of studies is conformable to the course sketched above; and it is gratifying to find that the Institute recognizes the importance of giving to draughtsmen, as well as to architects, a superior culture.

I think I have said enough to show how important, and even necessary, and at the same time how difficult and delicate, a task the Institute is undertaking, when it attempts to establish an Architectural School. The only way in which it can be done well is to start right; and, to start right, it is necessary to have a thoroughly elaborated and well-digested scheme to start with. Whatever scheme of instruction may ultimately be adopted, it will be the aim of the School to exhibit to its pupils the field of knowledge in all its extent
and variety, and teach them to explore it for themselves; to
give them such varied and strenuous exercise as shall lead
them truly to know their own powers; and to train them
into thorough workmen. The last is, in one sense, the
easiest of attainment; in one sense, the most difficult. Care
and pains will make an accurate and skilful draughtsman;
but an architect's work in design lies in discovering every
possible solution of his problem, testing, in turn the merits
of each, and wisely judging between them. To do this work
thoroughly, requires not only ability and learning, but good
habits of work; habits which can hardly grow up in the
pressure of practical life, and the formation of which is
the peculiar privilege of a school, as it is ever its greatest
achievement. How to form such habits of thorough study is
the chief question, after all: for, without this, success can
only be a brilliant failure; and, if this is accomplished, failure
in every thing else cannot prevent the School from being a
real success.

It would be but a poor illustration of our own methods of
procedure, if we attempted single-handed to work out the
great variety of questions that must come up, while an
almost identical problem is in course of solution in half a
dozens cities of Europe. The best-considered scheme, of
course, can have but a speculative value until tested by
experience, or perfected by the judgment of the experienced.
The field is new, and we shall doubtless fall into new and
original errors. We can, at least, save ourselves from the
old ones.

The curriculum indicated would not probably be found in
practice so formidable as it perhaps appears. A detailed
statement of any scheme would be likely to appear impracti-
cably elaborate. Still Art is long, and the time given to its
study cannot be short. Every student must determine for
himself how much study he needs, or can afford. Draughts-
men and assistants in the offices about in the city could, while
pursuing their avocations, keep their names in the School,
attend such partial courses as their leisure might permit, or needs require; presenting themselves for examination when they were ready. The regular students in the School would pursue a similar, but more condensed and continuous course; staying as long as their means or ambition might permit, passing all the examinations and carrying off all the distinctions they could. Whatever may be the case in the other departments of the School, the architectural course will probably have no fixed limits of time; each student’s position being determined, not by time spent, but by progress made. The immensely extended field of modern research requires, of course, a somewhat corresponding extension of the period of study; but much may be done to abridge it by providing apparatus and systematizing labor.

Extensive apparatus is indeed indispensable to the successful pursuit of these studies. Such a school should be able to offer a collection of examples, not now in construction, but in design. Modern science and the enterprise of corresponding institutions abroad have happily brought it within our power to form collections of any nature and to any extent, illustrating the history of art in all its forms. It may not be worth while to make large accumulations of casts and models, although all the resources of the British Museum and of the École des Beaux Arts are open to us, and we can have all we want for little more than the cost of the plaster. But Photography offers to bring the whole world to our door; and a systematic collection of architectural photographs, both of the ensemble and of the detail of buildings, so arranged as to be of easy reference, would be an invaluable and indeed an indispensable auxiliary. A well-selected though not necessarily a very large library, so placed as to be easily used in connection with these collections, and portfolios of first-rate architectural drawings, would be invaluable. These collections would in great part serve as well for schools of Industrial Design, should any such be established, as for the school of Architecture. They would form an important con-
tribution towards the Museum, in which all the departments of the Institute are ultimately to find an ample illustration, and would be, if properly catalogued and arranged, as useful to the profession as to the School, and a source of instruction and pleasure to amateurs and to the public.

And in this connection it may be remarked, that not the collections alone, but the whole Course, has an interest for the public at large, and for amateurs, as affording a singularly attractive means of obtaining a general education. A Course of General Culture, founded not upon a classical and literary, but upon a scientific basis, has already found a place in the School. The architectural studies here sketched out afford a truly liberal variation of this course, in which history, literature, science, and art combine to illustrate one of the most curious and striking manifestations of the human mind. For the last four hundred years, literature has been the only avenue to a liberal culture: but before the revival of learning architecture served, to a great extent, to fill this office; and it would be hard to find a study now, in the modern re-action against an exclusively literary training, better adapted to the wants of those who wish to try experiments in education.

By addressing itself to that which I have ventured to call the *prose* aspect of Architecture, that aspect which it presents when regarded neither as a fine art altogether, nor yet as mere building, and in which it appears rather as one of what are called now-a-days the Industrial Arts, or arts of design, the School hopes to avoid certain difficulties, both of theory and practice, which perplex the path of those who take in hand the highest artistic training. The highest attainments in the fine arts can be reached only by men of genius; and it is a question not easy to answer for those, the success of whose undertakings depends upon an unlimited supply of this rare and delicate staple, how men of real genius are to be found, and, when found, how they are to be treated so as not
to diminish or quench the heavenly spark. By directing our methods to meet the wants rather of talent and intelligence, of the common mind, not of the exceptional mind, we give prominence to what must always be the main work of a school, and, as I have said, steer clear of these perplexities. At the same time it is undoubtedly the office of a first-class school, as has been well said of late, not only to "give all its students as high a culture as they can receive, and thus steadily raise the tone of the community by sending in a constant influx of cultivated minds, but also to develop to the highest point minds of the first class." Now, the most efficient agency for bringing out all the powers of first-rate men has been found, both in literature and in architecture, to be that of competitive examinations of great difficulty, in the preparation of which every facility is offered, but all possible freedom allowed; and for which the prize shall be not only honorable in the highest degree, but shall have, if possible, a real value. This last provision is not necessary at any given moment to get the maximum of work out of the competitors; the honor suffices for that; but it is of great use in bringing into the school the best talent from the largest community. In the English Universities, a national name, and a competent maintenance in the shape of a Fellowship, are the rewards of academic success. In the École des Beaux Arts in Paris, the successful aspirant for the annual architectural prize is sent to Rome for four or five years, and supported there at the expense of the French Government. In both cases the discipline is, perhaps, unsuited to the average mind; but its effect in bringing to a high activity minds of unusual power is something astonishing. If the endowments of this School permitted us to offer as a prize for attainments in the highest walks of architectural design, for absolutely reaching a given standard, I mean, not merely for coming out first best, two or three years of European travel and study, with a thousand dollars a year to pay expenses, we should have, within half a dozen years, such a congregation of able young men as
would, in their day and generation, put a new face upon the profession. I am inclined to think, that it would be for the advantage of the School, even in a pecuniary point of view, to do this without special appropriations, and to set it down to the account of its regular expenses, in the expectation of having the sum more than made up by the greater accession of pupils from the more distant parts of the country. That it would be of the most signal service in furthering the work it has in hand, to collect, at almost any expense, a superior class of pupils, there cannot be a doubt. It is not to be expected, or desired indeed, that the School should be very largely recruited from this community: it is rather our object to improve the profession by making the most of the learning and ability which are, at all times, engaged in it, and to enable it to achieve results proportionate to them. But the more young men we can get from a distance, the better, both because we thus are enabled to do a more extended work, and because men will not be likely to come far unless they have a decided vocation for the study; so that, other things being equal, the wider the area we can sweep, the abler pupils shall we have. I believe, then, that it is as necessary, in order to find men of unusual parts, as it is in order to develop them when they are found, and that it is the most efficient way of doing either, to establish very difficult examinations, backed up by a very small number of very large prizes. The system is indeed very liable to abuse, and has undoubtedly, when injudiciously administered, led to evils which it must be our care to avoid, taking warning, as well as example, from the experience of others, but some such system seems to be as indispensable to the regular production of highly accomplished first-rate men, as is a course of daily discipline to making the most of average men. Happily, in the study of architecture at least, both may be done at once. The same appliances that serve to start the man of talent upon a successful career, set the man of genius on his way to the stars.
There can be no more mistaken or mischievous notion, it seems to me, than that there is a natural conflict between men of natural force and genius and men of education, unless, indeed, it is the notion, that, when they are brought into conflict, it is the self-trained man of genius who holds his own, and the man of education that goes to the wall. Our public life, indeed, sometimes exhibits its chief successes in the persons of men born and bred in the woods and wilds. But the art of administering government is with us, as yet, still in its infancy. Our political system is still primitive and crude; only its main principles have as yet been struck out; and only the simplest methods of availing of the natural forces at our disposal, so to speak, have as yet come into use. Our domestic relations, at least, are still in that state of development in which, in all the arts, a vigorous common sense and singleness of purpose are most efficient. Yet the impartial biographer of Jackson and of Clay finds ample cause to regret that the wisdom that comes from learning was not also theirs. It has not been found that genius for war has been able to manifest itself to any considerable extent, except under the favorable influences of a technical training. Instances of such transcendent natural powers as to overcome every disadvantage of education are, indeed, sometimes found in science, seldom in literature, in art almost never. There are Franklin and Fulton; but they shone in the dawn of science: they would probably need all the appliances of a learned discipline to enable them to hold their own, now that its sun has risen. Burns, indeed, in the very noonday of English literature, shone bright and clear as a diamond from the dust, so fresh and simple in a sophisticated age, that we could hardly wish him other than he was. Yet we may remember, that it is in a literature more in keeping with itself that that age finds its true expression, and finds its true fame. Parallel instances may be found in the fine arts: but the more common spectacle is that of men liberally endowed by nature, generously devoted
to their work, struggling in vain against the obstacles which an imperfect culture has failed to remove; making, perhaps, a brilliant reputation for what they might do; more probably languishing in obscurity, despondency, and failure, passed in their own walk of life by their better trained inferiors, dying at last, and leaving no sign. A great deal is said about a self-sufficient and all-subduing nature, but the men of genius themselves are not deceived by it. They clamor for discipline, for training, for being taken in hand and put through all they should go through, for being taught all that it becomes them to know. An institution that can perform such service for such men is a great civilizing agent. Such an institution it is the ambition of this School to become. And if there are in the community the germs of architectural talent or architectural genius,—as who can doubt that there are?—and it is for the benefit of the community that they should be discovered, developed, stimulated, perfected, it can only be done by a school which shall at once afford the opportunities and create the intellectual atmosphere indispensable to their growth. "There is," says M. Taine, "such a thing as a moral temperature, consisting in the general state of mind and manners in a community, which is just like climate in the physical world. It does not, properly speaking, produce artists. Talent and genius, like seed-grain, are gifts of God; and there is probably in any given country about the same proportion of first-rate men and average men at one time and at another. . . . But a certain moral climate is needed to develop certain kinds of power. If it is wanting, the seed does not germinate. Accordingly, as this moral climate changes, the kinds of talent appearing in a country will change. . . . It is thus that we see, at certain periods and under certain influences, different schools of art arise, now of drawing, now of color, now of realism, now of the ideal." Architectural talent, we may be sure, will not manifest itself except under favorable conditions. In art as in literature, "the creative power," to
quote again from Mr. Arnold, “works with elements, with materials. What if it has not those materials, those elements, ready for its use? In that case, it must surely wait till they are ready. . . . This is why great creative epochs are so rare; this is why there is so much that is unsatisfactory in the productions of many men of real genius; because for the creation of a master-work two powers must concur, the power of the man and the power of the moment, and the man is not enough without the moment: the creative power has for its happy exercise appointed elements, and those elements are not within its own control.”

We have in this country the most intelligent population in the world; I mean not only that more persons have reached that stage of intellectual development at which an advanced culture becomes possible, but that a certain quickness of intellectual sympathy, a readiness to understand things as they really are, and to act accordingly, is a characteristic of those persons. Now, Architecture, of all the arts, most distinctly requires this sort of intelligence. It is founded on necessity, and is amenable to reason. We are also making great strides in material prosperity and in public and private magnificence; and Architecture, of all the arts, most directly ministers to a proper pride. There is every reason, then, to hope for an abundant reward for our labors in the near future. There can be no want of good seed; the moral temperature promises to be favorable; we have only to prepare the ground.

It has been said of the ancient Jews, that, while the nations of the Gentiles cherished glorious traditions of a fabulous past, they alone, though not without a history, set their golden age in the future. The people of the United States are equally conscious of being a chosen people, set apart to preserve the sacred ark of Liberty, and to transmit the true faith to the nations; and they too habitually dwell in imagination, not on the glorious past, but
upon the still more glorious time to come. In the career which that time has in store, no one would deny that the development of the arts is an essential element; and, of all the arts, Architecture has most immediately to do with the greatness of the commonwealth. It is by the aspect of its buildings that a great country asserts its greatness. The buildings of any people cannot fail, indeed, like their personal conduct, to be in a certain sense individual and characteristic; but it is of grave importance that our public buildings, as well as our national manners, shall be also excellent in themselves, and that they shall express our best characteristics. It is the aim of this School to do what it can, in its day and generation, to insure that the Architecture of the future shall be worthy of the future.