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CONNECTICUT SOCIETY
OF
CIVIL ENGINEERS



1912

Connecticut
Society of Civil Engineers



Papers and Transactions for 1911

AND

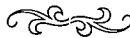
Proceedings

OF THE

Twenty-Eighth Annual Meeting

AT

NEW HAVEN, FEBRUARY 13 AND 14, 1912



New Haven

THE TUTTLE, MOREHOUSE & TAYLOR COMPANY

1912

Connecticut Society of Civil Engineers

ORGANIZED AT BRIDGEPORT, JANUARY 15, 1884



Officers for 1912

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LIST OF EX-PRESIDENTS

WITH DATES OF SERVICE

*B. HULL	1884, 1885
CHARLES M. JARVIS	1886
CHARLES E. CHANDLER	1887
CHARLES H. BUNCE	1888, 1889
*F. FLOYD WELD.....	1890
E. P. AUGUR	1891, 1892, 1893, 1894
WM. G. SMITH	1895, 1896
ROBERT A. CAIRNS.....	1897, 1898
EDWIN D. GRAVES	1899, 1900
HENRY J. KELLOGG	1901
CLARENCE B. VORCE	1902
FREDERICK L. FORD.....	1903
JOHN K. PUNDERFORD.....	1904
ALBERT B. HILL.....	1905
CHARLES F. CHASE.....	1906
DANIEL S. BRINSMADE.....	1907
EDWARD W. BUSH	1908
FREDERICK J. EASTERBROOK..	1909
SHEPARD B. PALMER.....	1910
CHARLES A. FERRY	1911

* Deceased.

PRESIDENT FERRY'S ADDRESS.

In presenting the annual address, which custom has seemed to decree as one of the duties of a retiring President, two courses are open; either to look back over the road which we have traversed during the past year, or to set a few stakes by which a trail may be blazed through the wilderness of the future.

Permit me to choose the latter course, only pausing long enough to take a back sight that we may be enabled to get our bearings.

The growth of the Society during the past year has been entirely satisfactory, as will be seen by the report of our Secretary. Large accessions to our membership cannot be expected, as the field from which we can draw new material is not very extensive; but the fact that each meeting is marked by the addition of new members indicates that the Society commands the respect of the engineers of this State, and offers them something which they consider of value.

Thanks to the untiring efforts of one of our Directors, Mr. Kellogg, the financial condition of the Society, as exhibited by the Treasurer's report, is very encouraging. One who has not attempted to secure advertisements for the annual report has no idea of the amount of work which is represented on the advertising pages of our publication. I wish to express, here, my appreciation of the work which Mr. Kellogg has done for the Society in this direction; it is due to him that our Treasurer's report shows a surplus instead of a deficit.

By the adoption of a badge, the wearing of which by the members calls the attention of the public to the existence of such an organization as The Connecticut Society of Civil Engineers, the Society has taken another step in advance. Seventy of our members, about one-quarter of our membership, have supplied themselves with pins, which shows that the call for them was real and not imaginary. The adoption of a badge of membership by a society is something like a country adopting a flag or a merchant placing a sign over the door of his place of business, and cannot fail of being a benefit to it.

The life of an organization like this, composed of individuals, naturally takes on some of the characteristics of the life of its component parts; it has its birth; its period when eating, sleeping and growing is the main end of existence; and its period of education and experience. A man having reached maturity, and failing to do his part in the world of work, thereby failing or refusing to repay to society the debt which he owes to it for services he has received, may well be classed as a failure, and as one whose leaving the world will be a benefit to it. Should not the obligation for public service be as binding upon a society as upon an individual?

Medical societies inaugurate laws for the promotion of the health of the communities in which they are located; organizations of clergymen unite for the moral and social uplift of the people; business men's clubs work for measures which will promote the public welfare in the way of more efficient business methods, etc. Surely, engineers ought to devise ways for benefiting the people at large by means not thought of by men of other professions.

Please do not misunderstand me and think that I am advocating the policy of the Society going into politics, or attempting to run the State legislature. Any measure which will promote the prosperity or happiness of the people at large, necessarily, is of interest to engineers. As we can accomplish more by acting collectively, as a society, than we can by individual action, it would seem to be well within the province of this Society to discuss matters of public polity in which engineering questions are involved and, if the majority of the members approve, for it to use its influence for the passage or defeat, as the case may be, of the measure in question.

This the Society has already done in a small way. Following out a suggestion in the annual address of President Bush, a bill was introduced in the last legislature of this State looking to the adoption of the "Torrens" law for the registration of real estate titles. Although we were not surprised at the result, I am sorry to report that the bill failed to receive a favorable report from the committee. However, in view of the fact that it took eight years for the same law to be adopted by the progressive State of Massachusetts, although it received the powerful support of the chief executive of the State, it is not strange that we failed in

our first attempt to secure its passage here, particularly as it was opposed by interests which might, possibly, be adversely affected by its adoption. But this law is in accordance with modern methods of transacting business, and is sure to find a place on our statute books, sooner or later. I only hope the Connecticut Society of Civil Engineers may have the honor of being instrumental in having it placed there.

Conservation seems to be the watchword of the hour, and conservation may well be worthy of our attention.

Water is one of the most, if not the most, valuable natural resource of Connecticut. To utilize it in such a manner that it can be made to give the largest return, in the way of comfort and material wealth, to the people, is a problem which may well challenge the best efforts of the engineers of the State.

To accomplish the desired object it might be well for the State to place the matter of the conservation of the water under the control of a commission similar to the Water Supply Commission of the State of New York; either by enlarging the powers of one of the present commissions or by the creation of a new commission for this particular purpose.

The most important use for water is, of course, for domestic purposes; and the problem here is to assist municipalities in securing a sufficient and suitable supply for meeting the requirements of the community with the greatest economy and the least injury to other interests.

At present each community is free to act for its own interests regardless of the interests of neighboring communities and, by chartered rights and by purchase of land at strategic points, control water supplies sufficient not only for present needs but far in excess of any probable future requirements, while its less far-sighted neighbor may be obliged to seek distant sources of supply at great expense or else pay tribute for that which nature has placed close at hand.

A commission could apportion the waters of the State, as required, among the different communities in such a way that each could have sufficient to meet their requirements at the least total cost for all.

Under the present system of granting charters which a subsequent legislature may repeal, a corporation, municipal or private, has no assurance that it may be able to retain that which it has

obtained at great expense. One of the cities of the State, a few years ago, was denied the right to divert the water of a certain stream, even after it had expended a large sum of money preparatory to such taking. At the last session of the legislature a petition was brought praying for the rescinding of the chartered rights to divert the waters of a certain stream, although the corporation which had held a charter for that purpose for many years had already expended a large sum of money on necessary diversion works. The petition came very near being granted, having received a favorable report from the committee and passed one branch of the legislature, but was defeated by a close vote in the other branch.

It is a question whether such rights can be taken away without the corporation suffering the loss being compensated, but that can only be determined by a Supreme Court decision, and the policy of the government should be to prevent rather than foster lawsuits by playing fast and loose in such matters. The granting or rescinding of charters of this character should not be subject to legislative trafficking. Such a charter should not be granted until a hearing had been held by some permanent commission which is governed, to some extent, by precedent and well-formulated rules. All parties in interest should be heard, either for or against the granting of the charter, and the decision should state the amount of water which may be taken, the conditions under which it may be taken, and the amount of compensation to be paid to the parties whose interests are adversely affected.

Subject to an appeal to the courts, the decision of the commission should be binding upon all parties. Permission having been given and the time allowed for an appeal having expired, the corporation holding the charter should feel safe in proceeding with the work of development under its charter.

An engineer traversing the water courses of the State cannot fail to be impressed with the important part which water powers played in the industries of the State in the olden time. Mill ponds dotted the valleys like beads upon a string; and the water literally had to work its passage from the highlands to the sea. Crumbling ruins of old mills or broken dams are frequently met with in the heart of the woods; and where there are now no visible evidences of a mill ever having existed, local names and

references in old deeds attest the one-time existence of some industry, small or great, operated by water power.

With the coming of the railway, with its cheap transportation of freight, and the development of the steam engine for power, the cost of hauling the raw material to and the manufactured product from the mills located in these remote localities, exceeded the difference in cost between steam and water power. The result was that many of these industries located in districts remote from the railroads were either driven out of existence or were forced to remove to localities more favorably situated for freighting facilities.

With the coming of the electrical engineer, however, conditions have again changed. Power can now be transmitted so cheaply that many of these old abandoned water powers can now, probably, be profitably utilized. Water powers in the hills, harnessed up with steam powers, to give a uniform output of power, located where coal can be cheaply obtained, will probably be a feature of the industrial development of the future.

The New York Water Supply Commission has made an inventory of the undeveloped water powers of that State, and estimate them—not including the undeveloped powers of the Niagara and St. Lawrence rivers—to amount to the grand total of nearly nine hundred thousand continuous twenty-four-hour-seven-day dependable horse power without auxiliary. It is safe to say that a few thousand dollars expended by this State in making such an investigation of the undeveloped water powers here would result in larger returns than the same amount of money spent in preparing elaborate biographical sketches of the members of the legislature to be presented to them as souvenirs.

Private enterprise can probably be trusted to develop the cream of these now idle water powers, but the problem is to provide the means whereby, in utilizing the cream, the market for the skim milk shall not be destroyed.

With the increased cost of mining coal, due to deeper workings and advancing wages, coal must, inevitably, be more expensive in the future than it is now; consequently, water powers which would not give an adequate return for the investment if developed at the present time might become valuable privileges twenty-five or fifty years hence.

A wise and far-seeing commission could perform a great service to the State by, first, preparing an inventory of the water powers already developed as well as of those which might be developed at a cost approximating that of steam power per horse power; and, second, by obtaining legislation which would enable the commission to secure the development of these powers under conditions necessary for their highest economical efficiency.

The construction of storage reservoirs for equalizing the flow of streams, thereby lessening floods and causing to do useful work water which now is of no benefit, but rather a detriment, to the mills on the streams, might be considered a matter as well within the province of the State as the construction of improved highways.

At the last session of the legislature a bill was introduced to prohibit the turning of sewage into the streams. It is a question whether such a law would not do more harm than good. Under present conditions, when the turning of sewage into a stream causes a nuisance, or is detrimental to the health of a community, the courts are not slow to order the purification of the sewage before it is thus disposed of. There are probably many places where the turning of sewage into streams, while not an ideal method of disposal, does not materially injure anyone, while to compel all communities to purify their sewage before it can be turned into running water would impose a great burden on the people.

This matter might well be placed under the control of such a commission as has been suggested, and it might be given the power to prescribe to what extent and in what manner sewage might be turned into the streams.

This has not been suggested as the only way, nor necessarily the best way, but is simply given as an illustration of a way in which our Society can serve the public.

It is not desirable that we should make ourselves unduly prominent before the public, and advocate or condemn all sorts of measures, good, bad or indifferent, just for the sake of attracting attention; neither should we be unduly modest and refrain from letting ourselves be heard when there are questions of importance under discussion concerning which engineers, from the nature of their education and experience, should have more knowledge than men in other walks of life.