

the provisions of this act shall be limited to the services of engineers in the design, inspection and supervision of construction, and reports on the safety of any structures or works on any of the following kinds or classes of structures and works.

"(1) Bridges 16 feet or more in length or other structures requiring a determination of stresses and strains for their design, on public highways or roads open to the use of the public, or on steam or electric or other railroads.

"(2) Structures built of stone, plain concrete or reinforced concrete.

"(3) Structural steel structures including steel in buildings and similar structures when said buildings or structures are three or more stories in height; also steel in mill-buildings, steel in grain elevators, steel in mine and mill structures, steel in industrial buildings, and steel in plants and steel in structures on ditches, canals, sewers, waterworks and power plants.

"(4) Canals, ditches and conduits having a capacity of fifty cubic feet per second or more.

"(5) Sewers and sewer systems and sewage disposal plants; water supply plants for domestic use, and power plants, including power plants for irrigation.

"(6) Dams and reservoir embankments of a height of ten feet or more.

"(7) Mill and power plant buildings of timber, brick, concrete or any combination of these materials and electric transmission lines.

"(8) Timber bridges, trestles or structures for mill, mine and industrial plants, grain elevators, ditches, canals, sewers, waterworks and power plants.

"(9) No maps, plans, designs, reports, statements or filings to be certified or approved by an engineer shall be accepted or filed by any State official unless the certification or approval is executed by a person duly licensed in accordance with the provisions of this act.

"All maps, plans, designs, reports, statements or filings prepared by or under the direction of a licensed engineer shall bear the name of such engineer accompanied by the words 'Licensed Engineer, State of Colorado.'"

In as much as the Canadian Society of Civil Engineers proposed to ask Parliament to define the term "civil engineer," it will be interesting to note an old definition which appeared in Ree's Cyclopaedia, 1st Am. Edition, published in Philadelphia, 1819:

"Civil Engineer—a denomination which comprises an order or profession of persons highly respectable for their talents and scientific attainments and eminently useful under this appellation as the canals, docks, harbors and light houses, etc., amply and honorably testify." It is worthy of note that our ancestors were highly respectable and useful members of society.

The underlying principle in these definitions is construction. Surveying and hydrography are only minor parts of civil engineering.

A man who is exclusively a land surveyor or exclusively a hydrographer is not a civil engineer.

The proposed Alabama Act of 1911 divides the profession into civil engineers, mining engineers and surveyors:

(1) A civil engineer is defined as any one capable of designing and supervising the construction of any public bridge, railroad, sewer, sewage disposal plant, filters, waterworks, ditches, mines, tunnels or works of similar nature.

(2) It provides that all maps for public record must be certified by a licensed surveyor.

(3) Drawings, specifications and estimates for public record must be certified by civil or mining engineer.

(4) No construction work shall be supervised or directed and no public employment as engineer shall be held except by licensed engineers.

Proposed Indiana Act.—Provides (1) no person may design, lay out or superintend or act as chief engineer of any work that may be classed as civil engineering work or hold office as city engineer in that state without obtaining a license.

The next serious question that arises is, What qualifications must an applicant have in order to receive a license.

In the Colorado Act.—The Board of Examiners may issue a license upon examination or upon the record, training and experience of any applicant who has practised civil engineering for a continuous period of not less than ten years immediately preceding. In order to be admitted to examination a candidate must be qualified as follows: (1) More than 25 years of age; (2) good moral character; (3) engaged actively in civil engineering work for at least six years and in active charge of work for at least one year; or (4) graduate of engineering school of recognized reputation and has been actively engaged in civil engineering work for two years with active charge of work for at least one year.

Every act contains a provision known as the grandfather clause. In the Colorado Act this provides that during the first year the board of examiners shall accept as proof of the candidate's capacity to perform the duties of a civil engineer, the record, training and experience of any candidate who possesses the qualifications for admission to examination. This means that practically all who have been practising for six years with responsible charge of work for one year would be admitted during the first year.

Licenses and examinations are in three classes: (1) Irrigation and hydraulic engineering; (2) municipal, hydraulic and sanitary; (3) structural engineering.

Under the Proposed Alabama Act.—Licenses are issued as follows: (1) On examination. (2) To all practising in the state at time of passage of the bill (grandfather clause). (3) Graduates of University of Alabama and Alabama Polytechnic after two years' experience for surveyor. After four years' experience for civil engineer or mining engineer. (4) Non-graduates. After four years' experience for surveyor. After eight years' experience for civil engineer or mining engineer. (5) To engineers holding licenses from other states. (6) To members of American Society of Civil Engineers. (7) To members of Institute of Mining Engineers. (8) Any junior or military engineer in United States Civil Service.

Taking up those acts which license only a limited number of the profession.

The State of Wyoming passed a law in 1906 which has been in operation ever since. This law licenses only those who prepare plans or designs in connection with the use of water in the state or who apply for a permit to divert water.

Licenses are issued to the following: (1) Land surveyors on examination—plane surveying. (2) Topographical engineers on examination—plane and topographical surveying. (3) Hydraulic and hydrographic engineers on examination—plane surveying and hydraulics. (4) Construction and designing engineers on examination