

JOHN WALTER LEDOUX, M. Am. Soc. C. E.¹

DIED NOVEMBER 7, 1932

John Walter Ledoux, the son of John and Almira (Knox) Ledoux, was born near St. Croix Falls, Wis., on August 28, 1860. His ancestry on his father's side was French-Canadian; on his mother's side, he was of Scotch descent.

His father was a farmer and, later, an explorer in the Lake Superior mining regions, and the boy's earlier education was obtained in the public schools of villages in the Lake Superior District, of Michigan. He worked in the iron mines of this District from the age of nine (when his mother died) until he was twenty-one, leaving school at the age of thirteen, upon the death of his father. His duties in this work were connected with engines and boilers and other mine machinery.

¹ Memoir prepared from information on file at the Headquarters of the Society.

While working in the mines, his spare time and nights were spent in study and, at the age of twenty-one, he had devised a method of finding the direction of a mine drift; this was practically his first invention. Its success and the recognition of its value in mining operations attracted attention, and led to advice which resulted in Mr. Ledoux preparing for a higher education. For a short time he attended Adams Collegiate Institute, at Adams, N. Y., and in 1883, he entered Lehigh University, at South Bethlehem, Pa., from which he was graduated with honors in 1887, receiving the degree of Civil Engineer.

Technical practice for Mr. Ledoux began during his student days through employment on engineering work at spare times and during vacations. Upon his graduation from Lehigh University, he became Borough Engineer of West Bethlehem, Pa., in order to carry to completion work upon which he had been engaged. This work included a complete survey of the Borough, establishing grades, and setting monuments. Next, he entered the employ of the Stanwix Engineering Company, of Rome, N. Y., of which firm he became a member in 1889, continuing the association until he was appointed Chief Engineer of the American Pipe Company, of Philadelphia, Pa., in 1891. He served in this capacity until 1920 (when the Company's expansion activities practically ended) after which he continued as its Consultant, and entered into private practice as a Consulting Engineer.

The engineering activities of Mr. Ledoux were many and diversified. Although specializing in hydraulics and making investigations and reports on water supply and water-power projects, together with the design of plants and systems, he also invented and manufactured extensive scientific apparatus used in connection with water supply systems and filtration plants for regulation, control, and measurement. He also testified before Public Service Commissions and other tribunals in condemnation proceedings, rate cases, valuations, and other legal matters, and wrote many papers for publication and presentation on such engineering subjects as hydraulics and water supply and treatment, valuations, and rates. Mr. Ledoux visited and studied plants in Europe and in South America. He was among the early investigators on the scientific appraisal of utility properties for valuation and rate-making, on which he was a recognized authority; he was also one of the pioneers and an authority on water treatment and on rapid sand filtration in the United States.

During his career as an engineer, investigations were made of many projects with reports thereon for water supplies and power installations, followed by the construction of some of them. Mr. Ledoux designed and constructed gravity supplies, pumping plants, filter plants, wells, more than 100 dams and reservoirs, pipe lines of all classes, conduits, power plants and transmission lines, electric railways, and gas plants.

While with the Stanwix Engineering Company, he was engaged in water supply investigations, mainly in the Allegheny Mountain regions, measuring stream flow, studying rainfall, and investigating water rights; he also served as Resident Engineer on surveys and the construction of a reservoir at Horse Shoe Curve on the Pennsylvania Railroad, with pipe lines to Altoona, Pa.; he constructed reservoirs and pipe lines for the Westmoreland Water Com-

pany, supplying Greensburg, Pa.; and investigated and reported on water supply projects in other localities.

As Chief Engineer of the American Pipe Company (later, the American Pipe and Construction Company), his duties were broad and diversified as the Company was engaged in initiating, financing, constructing, owning, and operating water-works properties, and through a subsidiary, the National Gas and Electric Construction Company, extended its activities to other utilities, such as gas-works, electric plants, and street railways.

Among the water-works designed and constructed by Mr. Ledoux were those for: Paris Mountain Water Company, Greenville, S. C., with a filter plant built in 1891, one of the earliest in the United States; Sumter, S. C.; LaGrange, and Milledgeville, Ga.; Opelika, and Selma, Ala.; Asbury Park, Clayton, Glassboro, Millville, Westfield, and Newbold, in New Jersey; Norfolk, Va.; Waukesha, Wis.; Texarkana, Tex.; Syracuse, and Cortland, N. Y.; Rochester and Lake Ontario Water Company; Buffalo and Niagara Falls Water Company; Depew and Lake Erie Water Company; Western New York Water Company; New York Suburban Water Company; New York Interurban Water Company; and the Springfield Consolidated Water Company for the suburban areas surrounding Philadelphia, Pa. Mr. Ledoux developed the water supply system for the Pennsylvania Railroad Company, supplying trunk and branch lines from Philadelphia to Pittsburgh, Pa., from Philadelphia to New York, N. Y., and from Philadelphia to Baltimore, Md., with developed gravity or pumped supplies at: Christiana Creek, and Winters Run, in Maryland; Octararo Creek, in Maryland and Pennsylvania; Stony Creek, near Dauphin; Powell Creek and Clark Creek, near Duncannon; Wild Cat Creek, near Newport; Licking Creek, near Mifflin; Tipton Run, near Tipton; Bell Creek, near Bellwood; Blair Gap, above Hollidaysburg; the South Fork of the Conemaugh; the North Fork of the Conemaugh; Quemahoning Creek; Salt Lick Creek; Bens Creek; Trout Run; Beaver Run, above Johnstown; Tub Mill Creek, near Bolivar; Sugar Run, near New Florence; and Indian Creek, near Connellsville, all in Pennsylvania. He designed and built this system and operated it for two years before turning it over to the owners; the system also furnishes water to some towns.

Mr. Ledoux designed and constructed plants for the Norfolk Light and Power Company, Norfolk, Va.; the Greenville Light, Power, and Railway Company, Greenville, S. C.; a hydro-electric plant on the Schuylkill River, at Conshohocken, Pa.; and a hydro-electric plant on the Lamoille River, at Fairfax Falls for the City of St. Albans, Vt. The latter was built at the beginning of the Twentieth Century, with transmission at 2 300 volts, which was high at that time. He also made reports for power on the Androscoggin River, at Lewiston, Me., and the Salmon River, near Syracuse, N. Y.; and he handled sixteen power and water rights on the Nine-Mile Creek outlet of Otisco Lake. He reported on rights and power of the Susquehanna River, at Wilkes-Barre, Pa.; above and below Harrisburg, Pa.; at Turkey Hill and at Conowingo. He also reported on the Wallenpaupack Creek, above Hawley; Neshaminy Creek, at Neshaminy Falls; Niaugua River, in Missouri; various streams in Arizona,

California, and British Columbia, and the Clarion River and Beaver Creek, in Pennsylvania.

In addition to serving as Chief Engineer for the American Pipe Company many outside engagements were filled for water companies and municipalities including, Norfolk, Pittsburgh, Harrisburg, Lancaster, El Paso, Lehigh Coal and Navigation Company, Clear Springs Water Company, Citizens Water Company, of Scottsdale, Bethlehem City Water Company, Bristol, Tenn., Water Company, Washington County Water Company, of Hagerstown, Md., New Castle, Del., Water Company, Camden, N. J., Water Department, Wyoming Valley Water Company, and the Girard Water Company, in Pennsylvania.

In 1920 Mr. Ledoux entered private practice as a Consulting Hydraulic Engineer and continued in this status until his death. Among his engagements during this period were those with the Norfolk County Water Company, Western New York Water Company, City of Jamestown, N. Y., Lehigh Valley Coal Company, Wyoming Valley Water Company, Lehigh Coal and Navigation Company, City of Bethlehem, Pa., Clear Springs Water Company of Pennsylvania, Manheim, Pa., Water Supply Company, Mountain Water Supply Company, City of Philadelphia (as Chairman of a Commission for a future Water Supply), City of Norfolk, Pennsylvania Railroad Company, Long Beach Water Company (arbitration case), Lock Joint Pipe Company, City of Harrisburg, City of Camden, Lehigh Water Company, of Easton, Pa., and others.

He was the organizer of the Simplex Valve and Meter Company for the manufacture under his patents of scientific apparatus used in connection with water supply and other liquids, for measurement and regulation.

Through a long and intensely active career Mr. Ledoux wrote many engineering reports on various subjects for commercial purposes, together with papers presented before technical societies and published in technical journals. He had had charge, also, of the design and construction of more than one hundred engineering works. He had received more than forty United States patents for his inventions. The Longstreth Medal of Award of the Franklin Institute was awarded Mr. Ledoux in 1919 for meter inventions for use with Venturi tubes, and, at the time of his death, a second award had been reported on favorably for another invention.

In addition to engineering reports and papers, a number of theses were written and works of fiction composed. He was a student of classical literature and music, and an accomplished violinist. As a student, he had been a member of the college track team and of the first intercollegiate football team of his Alma Mater, and, in later years, he took up gymnasium work and lawn tennis.

He was a member of the American Society of Mechanical Engineers, American Institute of Consulting Engineers, New England Water Works Association, American Water Works Association, Pennsylvania Water Works Association, Franklin Institute, Philadelphia Engineers Club, University Club, and Tau Beta Pi Society.

Although he was enjoying excellent health and perfect mentality at the age of seventy-two, Mr. Ledoux was seriously injured by an automobile while

crossing a street on a stormy night, November 6, 1932, at Media, Pa. He died the following morning without regaining consciousness.

He was married to Laura A. Uberroth, of South Bethlehem, Pa., on July 9, 1888, and is survived by his widow, a daughter, Mrs. Stephen Gibbs, a son Leonard K. Ledoux, and a grandson John Walter Ledoux.

Mr. Ledoux was elected a Member of the American Society of Civil Engineers on June 5, 1895.