

Biographical Notice of John Birkinbine

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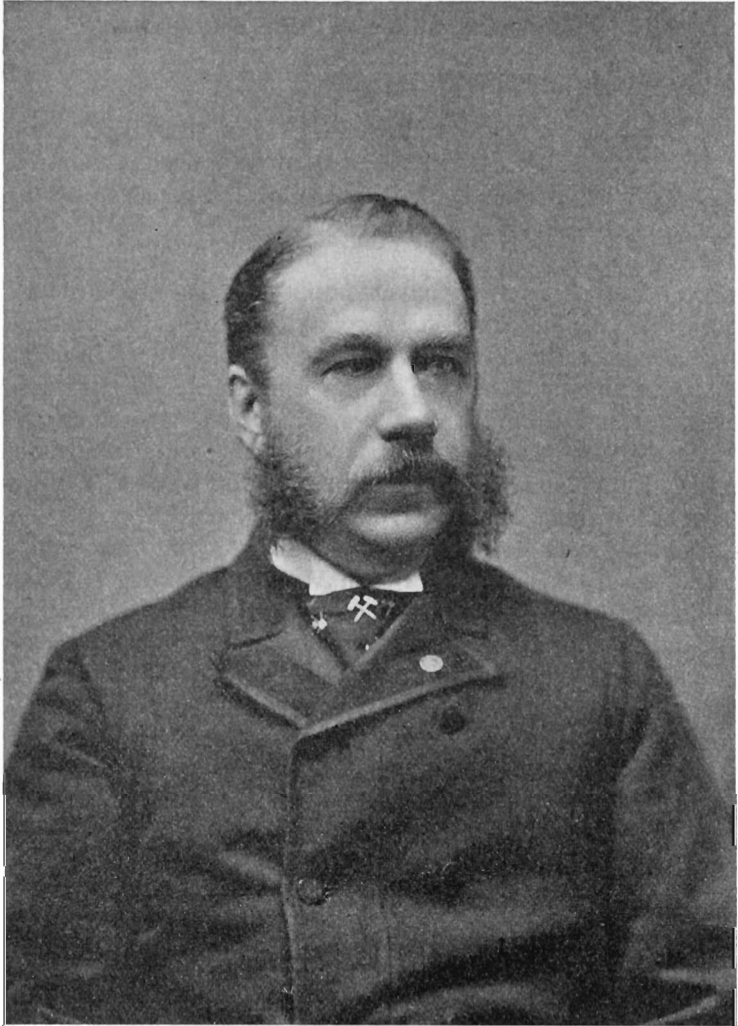
JOHN BIRKINBINE was born Nov. 16, 1844, at Reading, Pa., the eldest son of H. P. M. Birkinbine, widely known as a hydraulic engineer. The family removed subsequently to Philadelphia, where, as a young man he established with his father the office now continued by his sons, after more than 60 years.

His education was received at public schools, the Friends' High School in Philadelphia, the Hill School at Pottstown, Pa., and the Polytechnic College of Pennsylvania, where his studies were interrupted in 1863-4 by service in the Union Army, which included participation in the battles at and around Gettysburg. Later, he devoted two years to work in a machine shop; and subsequently he became associated with the late P. L. Weimer, under the firm name of Weimer & Birkinbine, operating the Weimer Machine Works at Lebanon, Pa.

Much of his work was in mining, metallurgy, and blast-furnace construction. As manager for the South Mountain Mining & Iron Co. he carried on experiments with various fuels for iron-ore smelting while maintaining the furnace in constant operation. The carefully recorded results obtained were widely published, and are referred to in text-books by other metallurgists as most complete.

From his Philadelphia office he was sent to nearly every State, and to Canada and Mexico, for examinations, reports, constructions or improvements in iron-ore mines, blast furnaces, iron works, water supplies, hydraulic development, irrigation projects, etc., and his engineering knowledge was requisitioned by several European corporations. A number of business trips were made to Mexico, beginning with a visit to the Cerro de Mercado at Durango, before railroads were established in that portion of Mexico, to make a critical examination and report on this "Iron Mountain." Later visits covered other localities and engineering problems, familiarizing him with the major part of the iron industry in Mexico. The late disturbed political conditions in that Republic have retarded the probable enlargement, modernization, and improvement of much of the iron and steel industry of Mexico, upon which he investigated and reported for various capitalists on both continents. One interesting subject included in these reports was a proposed electric furnace, to be operated by energy from water power.

Mr. Birkinbine was one of the first to suggest an iron industry at the head of the Great Lakes, using coke made from Pennsylvania coal. His report was an important factor in establishing the iron industry at the head of Lake Superior; and the blast furnace at West Duluth, Minn.,



JOHN BIRKINBINE.

was built under his plans and supervision. He was engaged by the State of Texas to investigate the practicability of iron manufacture in that State. As an engineer he co-operated with E. S. Cook of Pottstown, Pa., who did much to advance the iron blast-furnace industry. He was for

some years Consulting Engineer for the Philadelphia & Reading Coal & Iron Co., and held a similar position with Thomas A. Edison during the latter's early experiments in magnetic concentration of iron ore, and with Witherbee, Sherman & Co. in beneficiation tests; also for the Colorado Fuel & Iron Co. in the enlargement and improvement of their works and the construction of an augmented water-supply system.

In his reports and recommendations, his conclusions were clearly stated, and a reputation for conservatism and fairness brought him numerous cases of valuation, adjustment, and arbitration, in some of which, by mutual consent, he was the representative of both parties.

He always adhered to the policy of accepting no financial interest or contingent fees whatever, and would patent none of his numerous improvements or ideas, so that personal bias in his statements or conclusions could not even be suggested.

He also acted as an expert adviser for investing capitalists, and for a number of the greatest industrial corporations and several large railroad companies in this country. He was Chief Engineer, Vice-President, and Chairman of the Committee of Awards of the National Export Exposition, served on Juries of Awards at the Centennial, World's Columbian, Pan-American, and Cotton States General Expositions, and was named for similar duties at others.

From its inception in 1905 he was Chairman of the Water-Supply Commission of Pennsylvania, patriotically devoting to this work, for a nominal recompense, a large portion of his valuable time. As a result, he established an efficient organization, not only free from political influence, but noted for the zeal and faithfulness with which each member performed his duties.

He was active in forming the Pennsylvania Forestry Association, the largest and most influential of its class, and was its President for 23 years, during which time the Association accomplished the appointment of a State Forestry Commission (later made a State Department) and the enactment of statutes which encouraged the forestry movement. From the establishment of this Association, he edited its publications.

He was also active in the formation of the United States Association of Charcoal Iron Workers, of which he was Secretary, and for nine years the editor of its journal. For many years he was Special Agent for the United States Geological Survey, preparing the reports on Iron Ores for the 11th and 12th Censuses, and that on Manganese Ores for the 12th Census, and has since prepared for the Survey additional data and studies. He was appointed by the Secretary of the Interior Expert Metallurgical Engineer for the Bureau of Mines. He received marks of approval from the Survey and from several foreign scientific societies, and was member of a number of international congresses.

For 10 years he served as President of the Franklin Institute. He was

also a member of the American Society of Mechanical Engineers, the Engineers' Club of New York, the American Society for Testing Materials, the Engineers' Club of Philadelphia (President in 1893), the Manufacturers' Club of Philadelphia, the Pennsylvania Foundrymen's Association, the George G. Meade Post No. 1, G. A. R., of Philadelphia, and was an Honorary Member of the Canadian Mining Institute.

Mr. Birkinbine refused honorary degrees from two colleges, modestly saying that as he had been unable to graduate from his own *Alma Mater* he was not warranted in accepting a higher degree.

During his career Mr. Birkinbine also maintained his specialty of hydraulic engineering, acting as engineer on water supplies for various municipalities. He not only witnessed, but had active participation in, the development of water power for electrical energy. While he was at college, electricity was a laboratory experiment only, and its first exhibition as an illuminant was at Philadelphia about 12 years later; while the use of water power was then confined to limited volumes at low heads for direct mechanical purposes. His activities covered the development of hydro-electric science to its present advanced stage. In 1888 he prepared a comprehensive report on the development of the great water power of the St. Louis River in Minnesota, considering a 15-mile transmission, though no water-wheel manufacturer would guarantee turbines for heads above 35 feet. Since then he was associated with or reported on many developments in various States and in Mexico, covering high heads or large volumes of water until lately deemed impracticable.

Mr. Birkinbine became a member of this Institute in 1875, a Manager in 1883, Vice-President in 1887, and President in 1891 and 1892. The following is a list of his contributions to the *Transactions*:

Papers

Title	Vol.	Page	Year
Suspended Hot-Blast Stoves.....	IV	208	1875
Pumping Engines.....	V	455	1876
Notes upon the Drainage of a Flooded Ore-Pit at Pine Grove Furnace, Pa.....	VI	174	1878
The Production of Charcoal for Iron Works.....	VII	149	1878
Experiments with Charcoal, Coke and Anthracite in the Pine Grove Furnace, Pa.....	VIII	168	1879
A Short Blast at the Warwick Furnace, Pennsylvania.....	IX	51	1880
Charcoal as a Fuel for Metallurgical Processes.....	XI	78	1882
Roasting Iron-Ores.....	XII	361	1883
The Cerro de Mercado (Iron Mountain) at Durango, Mexico.....	XIII	189	1884
The Distribution and Proportions of American Blast-Furnaces.....	XIV	561	1885
Operation of Warwick Furnace, Pennsylvania, from August 27th, 1880, to September 1st, 1885.....	XIV	833	1886

Papers.—Continued

Title	Vol.	Page	Year
Comparisons of Blast-Furnace Records.....	XV	147	1886
A Tilting-Ladle Car for Molten Metal or Slag.....	XV	685	1887
The Distribution and Proportions of American Blast-Furnaces. (Second Paper.).....	XV	690	1887
The Resources of the Lake Superior Region.....	XVI	168	1887
Prominent Sources of Iron-Ore Supply.....	XVII	715	1889
Crystalline Magnetite in the Port Henry, New York, Mines.....	XVIII	747	1890
Progress in Magnetic Concentration of Iron-Ore.....	XIX	656	1890
The Fuel-Supply of the United States. A Sketch of the Progress of Twenty Years in the Economy of Production and Consumption. (Presidential Address.).....	XX	409	1891
The Influence of Location upon the Pig-Iron Industry. (Presidential Address.).....	XXI	473	1892
Industries of the Schuylkill Valley. (Presidential Address.).....	XXI	618	1892
The Development of Technical Societies. (Presidential Address.).....	XXI	962	1893
Note on a Supposed Aztec Mirror.....	XXIV	617	1894
Note on a Piece of Carpenter Steel.....	XXIV	619	1894
The Iron-Ore Supply.....	XXVII	519	1897
Distribution of the World's Production of Pig-Iron.....	XXX	504	1900
Hydraulic Pumping-Plant on the Snake River, Idaho, for Power, Irrigation and the Treatment of Gold-Sands.....	XXX	518	1900
Growth of the Pig-Iron Production During the Past Thirty Years. (Not Printed.).....	XXXIII	xxxvi	1902
Biographical Notice of William George Neilson.....	XXXVIII	402	1907
The American Institute of Mining Engineers and the Conservation of Natural Resources.....	XL	412	1909

Remarks in Discussion

Blast-Furnace Hearths and In-Walls.....	IV	186	1875
The Economy Effected by the Use of Red Charcoal.....	VI	204	1878
Experiments with Straight or No-Bosh Blast-Furnace.....	XIII	498	1884
An Improved Langen Charger.....	XIII	528	1884
Comparison of Some Southern Cokes and Iron-Ores.....	XV	754	1887
Development of American Blast-Furnaces.....	XIX	992	1890
The Iron-Mining Industry of New Jersey.....	XX	224	1891
American Blast-Furnace Practice.....	XX	266	1891
Manganese in Cast-Iron.....	XX	315	1891
The Magnetic Concentration of Iron-Ore.....	XX	595	1891
Preservation of Hearth and Bosh-Walls.....	XXI	118	1892
The Magnetic Iron-Ores of Ashe County, N. C.....	XXI	277	1892
Discussion on the Crushing of Iron Ore.....	XXI	548	1892
The Hugh Kennedy Hot-Blast Stove.....	XXI	735	1892
Nickel and Nickel-Steel.....	XXV	961	1895
Removal of Sand from Waste-Water of Ore-Washers.....	XXVIII	842	1898
Important Results Obtained in the Past Fifteen Years with the Stiff and Heavy Rail-Sections.....	XXIX	1015	1899
Blast-Furnace Practice.....	XXXVI	796	1905

Mr. Birkinbine always maintained a friendly interest in his fellow members of the profession, and held to the thought that engineers were coöperators and not competitors. He continued his personal interest in all associates and was ever ready to help young men by advice.

As a citizen he was always active in promoting the public good. He served on the Civil Service and other Commissions, as well as rendering professional services for the City of Philadelphia. His neighborly activities were maintained up to the end of his life. His last days were happily spent among his family, for as a devoted and Christian husband and father he fulfilled what he considered his greatest pleasure and the noblest of all his duties.

He died May 14, 1915, at his home in Cynwyd, near Philadelphia. Simple funeral services and private burial were held in accordance with his known desire; but the former were attended by representatives of many organizations and by professional colleagues and personal friends from many places.