

NATIONAL ACADEMY OF SCIENCES

LEWIS BUCKLEY STILLWELL  
*1863—1941*

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*A Biographical Memoir by*  
KENNETH H. CONDIT

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*Biographical Memoir*

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*Lewis B. Stillwell*

# LEWIS BUCKLEY STILLWELL

*March 12, 1863—January 19, 1941*

BY KENNETH H. CONDIT

**F**EW of the pioneer electrical engineers of the United States contributed as much to the advancement of electrical engineering, and to the position of the engineer in public esteem, as did Lewis Buckley Stillwell. The evidence for the accuracy of this statement is found in the honorary degrees conferred upon him by Wesleyan and Lehigh; in his published professional papers; in his memberships in the National Academy of Sciences, the American Philosophical Society, the Franklin Institute, the American Society of Civil Engineers, and the British Institute of Electrical Engineers; and in his election to the presidency of the American Institute of Electrical Engineers and the American Institute of Consulting Engineers, and to the chairmanship of the Engineering Foundation Board and the Board of Trustees of Princeton University. He was also a Fellow of the British Royal Society of Arts. Furthermore, he received the Edison and Lammé Medals of the A.I.E.E., the Niagara Medal of the Niagara Falls Power Company, and an A.S.C.E. medal for his leadership in the work of the Engineering Foundation Board. From 1921 to 1923 he was a member of the Board of Directors of the Chamber of Commerce of the United States, and was vice-president of the American Engineering Council from 1930 to 1933. During the First World War he was a member of the National Research Council.

Born in Scranton, Pennsylvania, March 12, 1863, Dr. Stillwell on his father's side was a lineal descendant, in the eighth generation,

of Nicholas Stillwell, an Englishman who came from Virginia to Manhattan in 1645 to become one of the principal lieutenants of Peter Stuyvesant and who resided at Manhattan and Gravesend until the English took over the colony, when he retired to Staten Island where he died in 1671. On his mother's side Dr. Stillwell was descended from several well-known families of German origin that settled in the forks of the Delaware early in the eighteenth century.

He prepared for college at the Scranton High School and studied for two years at Wesleyan in Middletown, Connecticut. He then transferred to Lehigh where he completed an electrical course in 1885. A year later he got a job with the Westinghouse Electric Company at Pittsburgh as assistant electrician, and was promoted in 1891 to chief electrical engineer, a post he held until 1897. In that year his outstanding work in the design and development of the generating and transmission equipment for the Niagara Falls Power Company led to his appointment as electrical director of that company, a position that engaged his talents until 1900, when he resigned to open a consulting engineering office in New York City.

As a consulting electrical engineer Dr. Stillwell played an important part in solving electrical problems connected with railroad electrification and electric power transmission. His first client, the Manhattan Elevated Railway Company, borrowed him from the Niagara Falls Power Company in 1899. His work for this company occupied him until 1906. Among other clients were the Rapid Transit Subway Construction Company, 1900-1909; the Hudson and Manhattan Railroad, 1905-1913; the United Railways and Electric Company of Baltimore, 1906-1920; the Interborough Rapid Transit Company, 1909-1920; the Hoosac Tunnel of the New York, New Haven, and Hartford Railroad Company, 1910-1911; the New York, Westchester, and Boston Railway Company, 1911-1915; the Lehigh Coal and Navigation Company, 1912-1918; the New York Municipal Railway Corporation, 1913-1916; the New York State Bridge and Tunnel Commission and the New Jersey Interstate Bridge and Tunnel Com-

mission, in connection with the Holland Vehicular Tunnels, 1924-1927; and the Port of New York Authority, 1927-1932.

Dr. Stillwell was an outstanding leader in the development of alternating current theory and application, and took a prominent part in the determination of Westinghouse policy with respect to system development engineering and the establishment of the 60- and 30-cycle standard frequencies. Among his important inventions are the Stillwell Regulator for the adjustment of voltage on outgoing lines; the Time Limit Circuit Breaker, used to localize interruptions of service caused by short circuits; and the Diagrammatic Pilot-Control Switchboard, which is universally used to maintain before the operator a diagram of the power circuits as the main switches are opened or closed.

In April, 1892, he married Mary Elizabeth Thurston of Pittsburgh. Their son, Professor Richard Stillwell, of the Department of Art and Archaeology of Princeton University, was Director of the American School of Classical Studies of Athens from 1932 to 1935 and Co-Director of the important Princeton excavation of the lost city of Morgantina in central Sicily which was begun in 1955.

Some measure of Dr. Stillwell's stature as a man may be gained from J. B. Whitehead's citation on the occasion of the conferring of the Edison Medal in January, 1936. He said: "I would bring to your attention some of the evidence of Dr. Stillwell's deep sense of the opportunities for public service open to the engineer, and the consequent responsibility upon him to give of his best, and always in accordance with the highest ethical and professional principles. Despite the exacting requirements of the planning and execution of such important projects as those we have mentioned, and in spite of health not always too robust, he has found time to give to the profession and to the public many results of his careful study and analysis, to take active part in movements looking to a more unified position and activity of the engineering profession in public affairs, and to constantly reveal his conception of the higher principles of conduct and professional relations which the engineering profession

should set for itself. No better evidence of the spirit which guides the man can be found than in the fact that in spite of a scarcity of vocal or written pronouncements specifically setting forth his ideals, Dr. Stillwell has long been regarded by his fellow engineers as a leading exponent in all movements calling for disinterested public service and a high sense of professional conduct.”

## BIOGRAPHICAL SKETCH AS OF NOVEMBER 15, 1927

Name: Lewis Buckley Stillwell

Date and Place of Birth: March 12, 1863, Scranton, Pa.

Occupation: Electrical Engineer

Business Address: 90 West Street, New York City, N.Y.

Residence: Princeton, New Jersey

Degrees: E.E., Lehigh, 1885; M.S., Lehigh, 1907; Sc.D., Wesleyan, 1907;  
Sc.D., Lehigh, 1914

Technical Societies:

Past President, American Institute of Electrical Engineers

Past President, American Institute of Consulting Engineers

Member, American Society of Civil Engineers

Member, British Institution of Electrical Engineers

Scientific Societies:

Member, National Academy of Sciences (Elected in 1921)

Member, American Philosophical Society

Member, Franklin Institute

Other Organizations:

Member, Alpha Delta Phi Fraternity

Life Trustee, Princeton University

Chairman, Engineering Foundation Board—1924-1927

Brief Professional Career, with dates:

Completed course in electrical engineering, Lehigh University, 1885

Assistant Electrician, Westinghouse Electric & Manufacturing Co., October, 1886, to 1890

Chief Electrical Engineer, Westinghouse Electric & Manufacturing Co., 1890 to March, 1897.

Electrical Director, Niagara Falls Power Company, March, 1897, to Sept., 1900

Consulting Engineer, Manhattan Elevated Railway Co., during electrification of elevated lines in New York City, 1899-1906

Electrical Director, Rapid Transit Subway Construction Co., during electrification of first rapid transit subway in New York, 1900-1909

Consulting Engineer, Wilkes-Barre & Hazleton Railway, 1902-1905

Consulting Engineer, Hudson Companies, in charge of electrical, mechanical, and rolling stock equipment, 1905-1913

Member, Erie Railroad Electric Commission, 1906

Consulting Engineer, United Railways & Electric Co., Baltimore, 1906-1920

- Consulting Engineer, Interborough Rapid Transit Company, 1909-1920  
Consulting Engineer, New York, New Haven & Hartford R.R. Co.  
(Hoosac Tunnel Electrification), 1910-1911  
Consulting Engineer, New York, Westchester & Boston Railway Co.,  
1911-1915  
Consulting Engineer, Lehigh Navigation Electric Co., 1912-1918  
Consulting Engineer, Pennsylvania Coal & Coke Corp., 1912  
Consulting Engineer, New York Municipal Railway Corp., 1913-1916  
Member, Board of Economics & Engineering, National Association of  
Owners of Railroad Securities, 1921-1922  
Consulting Electrical Engineer, New York State Bridge & Tunnel Com-  
mission, and New Jersey Interstate Bridge & Tunnel Commission,  
1924-1927



## KEY TO ABBREVIATIONS

Cassier's Mag. (Engng. Mon.)=Cassier's Magazine. Engineering Monthly

Electrician=The Electrician (London)

Elec. J.=The Electric Journal

Elec. Rly. J.=The Electric Railway Journal

Trans. Amer. Inst. Elect. Engrs.=Transactions of the American Institute of Electrical Engineers

## A PARTIAL BIBLIOGRAPHY

1890

Public Safety and the Distribution of Light and Power by Electricity. Paper. Engineer's Society of Western Pennsylvania. Pittsburgh, March 18, 1890.

1895

Electric Power Generation at Niagara. Cassier's Mag. (Engng. Mon.), 8:253-304.

1901

The Electric Transmission of Power from Niagara Falls. Trans. Amer. Inst. Elect. Engrs., 18:445-531.

The Electric Power Plant of the Manhattan Subway. Elec. Rly. J., 17:21-25.

1902

Non-combustible Cars. Elec. Rly. J., 19:162-63.

1903

Protected Third Rail on the Wilkes-Barre-Hazleton Railway. Elec. Rly. J., 21:743.

1904

The Use of Group-Switches in Large Power Plants. Trans. Amer. Inst. Elec. Engrs., 23:199-202.

The Development of Electric Power Transmission. Cassier's Mag. (Engng. Mon.), 26:97-121.

Notes on the Equipment of the Wilkes-Barre & Hazleton Railway. Discussion. International Electrical Congress, St. Louis.

Electric Power-generating Stations and Transmission. Paper 55. International Electrical Congress, St. Louis.

Substitution of Electricity for Steam as Motive Power. Paper 62. International Electrical Congress, St. Louis.

The last three papers are published in the Transactions of the American Society of Civil Engineers, Vol. 54, 1904.

1905

Electrical Equipment of the New Steel Cars of the New York Subway. *Elec. Rly. J.*, 25:422-30.

1907

With Henry St. Clair Putnam. On the Substitution of the Electric Motor for the Steam Locomotive. *Trans. Amer. Inst. Elec. Engrs.*, 26:31-101.

With Henry St. Clair Putnam. Substitution of the Electric Motor for the Steam Locomotive. *Electrician*, 58:758-61, 801-4.

1908

With Henry St. Clair Putnam. Notes on the Electric Haulage of Canal Boats. *Trans. Amer. Inst. Elec. Engrs.*, 27:277-316.

Power Consumption and Speed in the New York Subway. *Elec. Rly. J.*, 32:6-11.

1909

Electricity and the Conservation of Energy. *Trans. Amer. Inst. Elec. Engrs.*, 28:163-78.

1910

Conservation of Water Powers. (President's address.) *Trans. Amer. Inst. Elec. Engrs.*, 29:1037-52.

1912

Charles Ira Young: An Appreciation. *Elec. J.*, 9:218-23.

Steel Cars—Passenger Service. Bulletin from Consulting Office.

1913

The Status and Professional Relations of the Engineer. Discussion held Dec. 18, 1912, and March 11, 1913. American Institute of Consulting Engineers.

1915

The Status of the Engineer. *Trans. Amer. Inst. Elec. Engrs.*, 34:293-301.

1916

The Relation of Water Power to Transportation. Trans. Amer. Inst. Elec. Engrs., 35:61-574.

1934

Alternating Current versus Direct. Trans. Amer. Inst. Elec. Engrs., 53: 708-11.

## PATENTS

U.S. 399,218	"Stillwell Regulator" for regulation of alternating currents	1889
U.S. 399,219		
U.S. 434,163	Time limit overload relays for the control of electrical circuits	1890
U.S. 675,532	System for electrical distribution	1901
U.S. 771,027	With Henry Latey. Signaling system for electrically operated railways	1904
U.S. 936,488	System and devices for indicating train manipulation	1909
U.S. 1,231,236	With F. McF. Brickerhoff and Henry St.C. Putnam) Railway car construction	1917