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FOR PERMANENT RECORD

FILE LEWIS B. STILLWELL AS RECIPIENT OF THE LAMME MEDAL
OF
MEMBER AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

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DEAD FILE
SPECIAL

PRESIDENTS AND
PROMINENT OFFICERS

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When men assemble to honor a fellow man in just recognition of his valuable contributions to peaceful and helpful pursuits, the Gods clap their hands in admiration. Such mutual affairs prove that generosity of spirit, and honest appreciation exhibited toward desirable achievements, persist to a degree which reflects shame on the social, commercial and political jealousies, bickerings and wars that seem to be always with us. The exhibition of this appreciative attitude by the American Institute of Electrical Engineers in its administration of awards for its great medals of distinction makes it a particular pleasure to here present to you the recipient for 1933 of the Lamme Medal of the Institute and to lay before you some of his personal merits as I have observed them.

By way of introduction I will say a few words regarding the medal
(1)
itself and its distinguished donor. Mr. Benjamin G. Lamme graduated
(2)
from the Ohio State University in 1888. Shortly thereafter he entered the employ of the Westinghouse Electric company and rapidly came to a high place as a designer of electrical machinery. His reputation was international and is in the memory of all of us here. He is one of our cherished Edison Medalists. Always a rather retiring bachelor, he nevertheless maintained a lively interest in his alma mater and in the education of young engineers. Encouragement of achievement by the latter seemed to me to be one of the pleasures of his life. My personal acquaintance with Lamme was relatively small, but I think that

(1) and (2) - Interpolations from report of Proceedings, on last page.

we may take it as confirmation of his generous and comprehensive attitude that he left (at his death in 1924) bequests which provide for three medals to be awarded annually in recognition of distinguished accomplishments in particular fields. One of these is in the hands of the Ohio State University for conferring on an engineering alumnus each year; another is in the hands of the Society for the Promotion of Engineering Education for conferring each year on a distinguished teacher; and the third is in the hands of the American Institute of Electrical Engineers for conferring annually in recognition of achievement in the development of electrical apparatus or machinery. Of the first two of these medals we need say little on this occasion, but it is of interest to this Convention that several of them have been conferred on past-presidents of our Institute. Of the third medal, the one in our Institute's hands for conferring, the recipients heretofore have been: Allen B. Field of Manchester, England, Rudolph E. Hellmund of Pittsburgh, Pa., William J. Foster of Schenectady, N.Y., Giuseppe Faccioli of Pittsfield, Mass., and Edward Weston of Newark, N.J., - a galaxy of greatness in the field of electrical design and development.

This year the one chosen for recipient of the medal is our distinguished past-president, Dr. Lewis B. Stillwell, and it is an honor to be privileged to introduce him to you. The medal has been awarded to Dr. Stillwell "for his distinguished career in connection with the design, installation, and operation of electrical machinery and equipment." It is in recognition of his (to use the words of Dean West of Princeton University) "splendid record of rich and diversified achievement."

Born in 1863, - a Pennsylvanian, like the speaker,--
Mr. Stillwell enjoyed the usual high school preparation for college. Pursuing his college course for two years at Wesleyan University, Middletown, Conn., he transferred to Lehigh University for the study of electrical engineering. This thread of study led him directly to the laboratory of the Westinghouse Electric Company (then a young and small company) where he was made first assistant to the gifted Shallenberger, then "Chief Electrician" of the Company. In this position it was his fortune to hold an active part in the development of the alternating current system then being pushed forward under the pioneering leadership of Mr. George Westinghouse. Professor C. F. Scott, Mr. Lamme and others came into the employ of the company a year or more later than Mr. Stillwell, the first coming soon into the laboratory and the second coming into the work of design. Albert Schmid already was in the company's employ. Pittsburgh became an additional center of progress for the applications of electricity, such as were already growing up in other parts of the country. Stanley, Belfield and Chesney contributed to the Pittsburgh Center from a laboratory in Great Barrington, Mass.

Thus Stillwell and Lamme grew in electrical-engineering stature side by side, but with different responsibilities, the one being concerned with what he denominates as "system engineering", including the many problems then presenting themselves in the new field of central station practice and the distribution of electricity by alternating current circuits, and the other occupied by preference and aptitude with the designing of electrical machinery capable of fulfilling the unique requirements which then arose

from day to day. Lamme was a modest and retiring man who amply possessed self-reliance, and confidence in the guide board of his own experience, but who also possessed a fine spirit of cooperation. Thus the work of designing electrical machinery for the alternating current system and of developing central station and distribution practices went on side by side with hearty cooperation and good will.

Uninspired labor looks downward, forward and around about, but not upward. Creativeness stands with head high and chin up. The difference of attitudes is illustrated by the contrasts shown by the figure in Millet's picture entitled the Angelus, which is at devotion, to be sure, but a peasant with no outlook on life except conventional labor, compared with the figure in Raphael's St. Michael with its glory of enthusiastic attack. The spirit of St. Michael inspired the lives of the men who fought the battle of the electrical industry in the financially discouraging but scientifically romantic days of the decade of the '80's and well into the '90's, - at which time the industry suffered to high degree "the rythmical anguish of growth", and also at that time chemistry and physics could contribute relatively little enlightenment, money was scarce, and progress depended on intuition and resourceful experiment carried on with little fundamental guidance. Edison, Thomson, Bell, Weston, Sprague, Brush, Westinghouse, Stanley and their peers were leaders in America. Lamme did his part. Stillwell did his part and was soon making inventions relating to feeder regulation and other system features. Later his inventions extended to the transformer type of feeder regulators, the time-limit circuit breaker and diagrammatic pilot-controlled switchboards which are of such general utility in remote-control operations. It requires a certain stamp of heroism to carry on the work of the day resourcefully and produce improvements during pioneer days.

"'Tis his success that builds a man and also ruins him," says Sophocles in his Antigone. The early creators in our industry have dwelt in the dazzling splendors of Olympus. They also have endured the despairs of Hades. It is the latter that tries the courage and the former that tests the tenacity of a man; and these men that I have named, with others, came through the blazing trail with stiffened fibre and the gratitude of their fellow men.

During this early part of his career, Stillwell became acquainted with Edward D. Adams and Coleman Sellers, then the President and the Consulting Engineer of the projected Niagara Falls Power project. This led to active consideration of the adaptability to the needs of the Niagara Falls project of the yet unseasoned idea of polyphase alternating currents in power transmission; and it farther led ultimately to Mr. Stillwell retiring from the Westinghouse Company and becoming Electrical Director of the Power Company. The conditions of development in the now growing Westinghouse Company led to a comprehensive study by Stillwell and his associates of the fundamental questions of phases and frequency; and in the late autumn of 1890, at Stillwell's suggestion, a frequency of sixty cycles per second was unanimously endorsed as a standard by the company's principal designers. As an alternative, and for use where a large part of the power had to be converted for utilization as direct current, a frequency of thirty cycles per second was recommended. For the Niagara Falls plant, the speed of the hydraulic turbines ultimately resulted in the use of twenty five cycles per second instead of Stillwell's logically preferred thirty.

Conditions were now moulded so that Stillwell's influence on practice of generating and transmitting power was enlarged in a pre-eminent place. It was indeed a happy circumstance, and (as Ring Lardner

puts it) "Luck smiles on the worthy." The circumstance was as happy for the art as it was for Stillwell. In the Niagara Falls position Stillwell directed the installation and operation of the electrical plant, and the problems encountered in this work led to his most important patented inventions.

It was 1900 when Stillwell retired from his Niagara Falls post and set up as an independent consulting engineer, - a move which carried success with it. I became intimately acquainted with him ten years later. He was my immediate predecessor as President of the American Institute of Electrical Engineers and (as Junior Past President) he was a member of the Board of Directors of the Institute when I held the honor of presiding over the Board. I always found him friendly in advice, with an imagination which enabled him to view all sides of a question and also foresee the bearing of any solution on the prejudices of others. His advice was sound and fertile. His knowledge and experience were wide and serviceably brought to bear. The qualities of optimism and pessimism have been often discussed, with optimism extolled and pessimism deplored; but such discussions arise from a narrow and incomplete conception. The sound and socially fruitful human being needs a combination of the two qualities and this combination Stillwell possessed and still possesses.

Imagination coupled with optimism arouses visions which are pictured as capable of actual embodiment, but the pessimism produced by a restraining influence of historical hindsight prevents an over-optimism which might lead to a crash. Curiosity, interest, the intellectual joy of achievement, associate equally with all imaginative productions; and imagination, held definitely to face realities as a plane of origin, is a major tool of engineers.

It seemed to me then, and I continue of the conviction, that Stillwell held these qualities in high degree, and possesses this tool which he used well. His long-time successful practice as a consulting engineer proves the case.

The divergence between a creative mind and a conventional mind is disclosed in the mental attitude when executing a task. The conventional mind may be more than a rubber stamp, but it never rises above the stature of a steel die which may repeatedly impress on a record page a replica of that which has been externally imposed on itself. The character of the phenomena dealt with, the interrelations of the parts, and the broader reasons for the task do not arouse the conventional mind. Therein is disclosed the divergence. The thoughts of the creative man consistently relate enquiringly to the character of the phenomena, the interrelations of the parts, the relations of the particular task to other tasks, and the broader reasons for the task. His tasks are executed with precision, but his curiosity and his imagination intuitively survey the conditions of the task and the results of its accomplishment, and reflect on the possibilities of improvement which might result from making modifications or substitutions. This is a test which those of us who have been active and continuingly successful consulting engineers, creative designers or fertile industrial executives have had to meet.

Stillwell also possessed another quality which I admired and continue to admire. This is his ability to emancipate himself from the cramping cloak of an external "authority" and yet retain at a high level his spirit of cooperation. This is a manifestation of farsighted generosity and also of discipline of the mind.

I think that Stillwell and I do not fully agree in regard to the most fruitful mode of education for men who should become of foremost quality as engineers, in which he is interested as a feature in the improvement of the profession. He perhaps lays more weight than I on a general or humanistic course as part of the formal education for an engineer, and correspondingly assigns less importance to self-developed culture. Perhaps I also assign more importance to exacting study of science. However, the differences are not so great as they might appear to some. If the result of education may be defined, as has been suggested, as the state of knowing what to do under any given set of circumstances, and how and when and where to do it, then Stillwell again meets a test, - this time of a delightfully educated man.

I have said little regarding Stillwell's career during the past thirty-four years as a consulting engineer. Most of us here know something of it. It has been and still is an active and distinguished career. A large part of it has related to the development of elevated, subway, tunnel and steam-railroad train electrification; another part of it has related to steam-electric and hydroelectric power plants; still other parts to varied fields; and all of it has been worthy of the man. The live office of a consulting engineer in a growing industry is likely to contain various men of resourceful originality, but the senior figure of the office nevertheless is likely to be the central influence for stimulating that originality to creative effectiveness. Stillwell was responsible for plans when electrification was broadly adopted for

the elevated railways in New York City and later for the subways. Many devices were introduced into these plans, such as the umbrella type of protection for the third rail that he had previously used on the Wilkesbarre and Hazelton Railway, that are details of design but nevertheless were then achievements of importance as is shown by their general adoption as standards thereafter. Another exemplification of Stillwell's spontaneity is the Hauto plant of the Lehigh Coal and Navigation Company, which had a wide-flung reputation in its early days as the first large electric power generating plant in America deliberately located "at the mouth of the mine". These illustrations serve to show the broad and original character of Stillwell's engineering accomplishments.

Nr. Stillwell's honors include membership in the National Academy of Sciences, the American Philosophical Society, and the most important of our engineering societies. He has been President of our own Institute and of the American Institute of Consulting Engineers, and Chairman of the Engineering Foundation. He has been active in many of our most important committees. He has received the honorary degree of Doctor of Science from two universities; and has received medals in recognition of his Niagara Falls work and his work of encouraging and consolidating the research of the Engineering Foundation and the engineering societies. His contributions to society are not solely through our profession, but extend over a wide field of influence and for fourteen years have included active interest as a Life Trustee in the affairs of Princeton University. He has been an interested traveller and observer in foreign countries, and he is a friend of his fellow men.

Stillwell deserves bright honors for his contributions to electrical engineering design, and again for his contributions to social welfare and his voluntary attention to important affairs of education.

Interpolations

No. 1, page 1: In some respects I am entrenched on the group of my predecessor, Professor Paul Lincoln, but I speak from the point of view of a man in active practice of engineering but not an employee of the Westinghouse Company and therefore not in direct personal contact with Mr. Lamme.

No. 2, page 1: Let me add that the first formal course in electrical engineering in the United States was founded in the autumn of 1881 and the second one was founded quite independently in the early part of the calendar year 1882. Paul Lincoln presides over the destinies of the latter at the present time and I preside over the destinies of the former at the present time. (Laughter) You will find something of the route by which further progress was carried on in that respect in the article in the Golden Number of the Institute publication which I wrote and which was intended to be entitled, "Electrical Engineering Education." Some may be interested to look that question up.