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**William Stanley.**

In the development of the alternating-current system of generating and distributing electrical energy, the electrical industry received its greatest impetus. Following the very rapid expansions of electrical adaptation which followed the successful development of continuous-current apparatus, for years the inventors and men of genius cast about for some means of economically transmitting electrical energy to extended areas. With the evolution of the alternating-current system the problem of distribution began its solution.

It is a peculiarity of the history of this development that although many workers had given their attention to the problem, the final solution which appeared worthy of extensive experiment and trial was contributed to by but a few workers. Very prominent among those to whose genius we are indebted for the solution of alternating-current generating and transmission is the subject of this sketch, William Stanley.

William Stanley was born in Brooklyn, N. Y., November 22, 1858, the son of William and Elizabeth A. (Parsons) Stanley. He was educated at the Williston Seminary at East Hampton, Mass., was in Yale with the class of 1881, but insofar as electrical science is concerned, he is a self-educated man.

Mr. Stanley was engaged in the nickel-plating business in 1879, in New York City, when he became acquainted with Hiram Maxim, now Sir Hiram, and he says himself that the personality of the latter so impressed him that he disposed of his nickel-plating business and engaged with Mr. Maxim as an assistant. In those days Mr. Maxim was one of the foremost electrical engineers in the country and was the founder and chief engineer of the United States Electric Light Company of New York City. After a short apprenticeship, Mr. Stanley became principal assistant to Mr. Maxim and in that capacity had charge of the gen-

eral development of such new work as the company undertook. Mr. Maxim left the United States for the Paris Exposition in 1881 and Mr. Stanley resigned from the company and was engaged as an assistant to Edward Weston, with the old Weston Electric Light Company, at Newark, N. J.

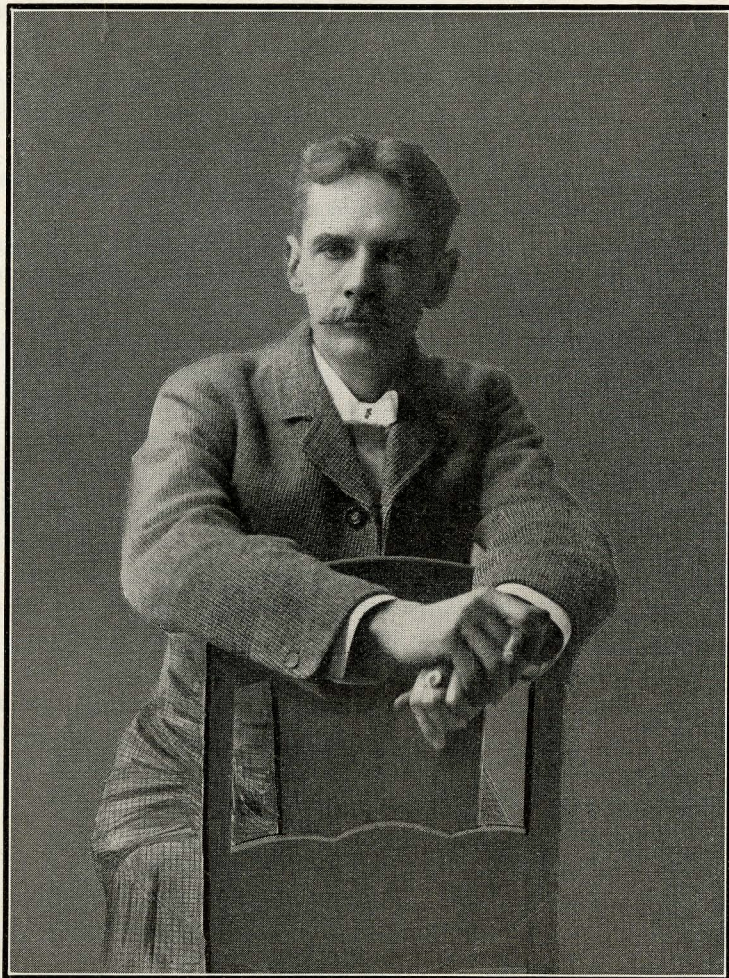
In 1882, Mr. Stanley became connected with the Swan Electric Light Company, remaining with this company for about a year, during which time he invented and perfected a

development of certain lines of investigation which he was interested in, and in case they were brought to a successful issue, Mr. Westinghouse agreed to promote them as a business enterprise and give Stanley an interest as a reward for his labors.

During this year Mr. Stanley installed and equipped a lamp factory for the manufacture of incandescent lamps at Swissvale, Pa., designed some continuous-current machines adapted to operate incandescent lamps, and was generally occupied with a system for this line of work.

It was about this time when very strenuous efforts were being made to devise some method by which electricity could be publicly served over more extensive areas than was possible with the systems then in use. Mr. Stanley began to investigate this subject and determined to devote his energies largely to an endeavor to solve this problem. In 1883 and 1884 he worked at an attempt to devise a general system of distribution employing alternating currents, and in 1885, while at Pittsburg, he began to have a very definite idea as to the methods of operation of induction coils energized by alternating currents, and conceived of the controlling actions and governing properties of the counter-electromotive force of induction coils.

In the spring of 1885, Mr. Stanley was taken ill and removed to Great Barrington, Mass. While recovering there he studied more ardently the problem of alternating-current distribution, and having worked out a coherent system he submitted the plans to a number of friends and to Mr. Westinghouse, but failed to secure the indorsement he had hoped for. He finally made up his mind to employ his own money for the construction of a plant which would demonstrate the value of this work. He rented a disused rubber mill at Great Barrington, engaged several assistants and ultimately developed what became known to the scientific world



WILLIAM STANLEY,  
Electrical Inventor and Consulting Engineer.

method of exhausting incandescent lamp bulbs. During 1883 and 1884 he conducted a private laboratory at Englewood, N. J., devoting himself to experimental work on storage batteries and other inventive and manufacturing propositions.

It was in 1884 that Mr. Stanley became acquainted with George Westinghouse, who was at that time president of the Westinghouse Air Brake Company and of the Union Switch & Signal Company, and of other enterprises. A contract was made by which Stanley was to devote his time to the devel-

as the Great Barrington plant at which alternating currents at 500 volts were generated and distributed in the town of Great Barrington through the medium of transformers connected in multiple. The success of this initial installation attracted electrical engineers and investors who visited the plant in May of 1886, in numbers. The Westinghouse Companies, realizing the value of the system devised by Mr. Stanley, took steps immediately for the development of the manufacturing details required for the production of Mr. Stanley's apparatus. The great electrical achievements that soon followed at Niagara Falls were largely contributed to by Stanley's inventions.

In the winter of 1890 and 1891, Mr. Stanley organized the Stanley Electric Manufacturing Company at Pittsfield, Mass., for the purpose of making electrical apparatus embodying his ideas. His associates in this enterprise were John F. Kelly and C. C. Chesney, and the immediate result of this organization was the famous S. K. C. apparatus. The first successful Stanley motors were completed early in the summer of 1892, and in 1894 the company installed the multiphase transmission system at Housatonic, Mass., operating at 2,000 volts and employing the radically new ideas involved in Mr. Stanley's apparatus. This installation was followed by many others of a similar character employing high voltages and led to a rapid introduction of this method of generation and distribution.

Later on Mr. Stanley organized the Stanley Instrument Company for the manufacture of a new form of wattmeter and for several years devoted his energies almost entirely to the development of this enterprise.

For some time Mr. Stanley has been engaged in a consulting capacity for a number of strong interests and at the present time he is at work on a very important line of research development, a chronicle of which must await the further working out of lines which have been well established and which point to a most important ultimate result in the conserving of energy through the generation and storage of electricity.

#### Convention on Engineering Education.

The nineteenth annual meeting of the Society for the Promotion of Engineering Education will be held in

Pittsburg, Pa., June 26, 27 and 28. Headquarters for the convention will be at the Carnegie Technical Schools.

#### Dr. Spitzka Lectures to Philadelphia Section.

The regular monthly meeting of the Philadelphia Electric Company Section of the National Electric Light Association was held on March 20. Edward Anthony Spitzka was the speaker of the evening.

Dr. Spitzka is professor of general anatomy in the Jefferson Medical College and is an authority on the anatomy and function of the nervous system. His contributions to scientific bodies on this subject are known throughout the world. Dr. Spitzka is also a student of the action of electricity on the human body and has conducted exhaustive experiments on the changes produced in the body by electricity. He is a strong advocate of electrocution.

Dr. Spitzka covered in his lecture the full range of the effects of electricity on the human body, from the effects of lightning to the usual current used for industrial and residential purposes. He brought out many new and interesting discoveries regarding the effect of electricity on the human system, which were fully illustrated by lantern slides. Dr. Spitzka gave many interesting experiences, based on his own investigation of some fifty-seven electrocutions in the various States in which electrocution is used as a means for capital punishment. In the majority of these cases Dr. Spitzka had made post-mortem examinations. Of interest was the statement that the temperature of the body in many instances was raised as high as 129 degrees Fahrenheit immediately after electrocution.

Regarding accidents which may occur in the commercial use of electricity, many slides were shown of various types of electric burns, their history stated, and various methods of practicing artificial respiration, which would in the majority of cases save the life of the injured, were explained.

The lecture was discussed by many prominent physicians and they were unanimous in their praise of the splendid work that is being done by Dr. Spitzka in this particular field, and the benefit which will naturally result in the saving of life. The discussion was also entered into by many prominent electrical engineers, among them Percy

H. Thomas and W. C. L. Eglin, who asked pertinent questions from the practical standpoint, all of which were ably answered by Dr. Spitzka.

Prior to the meeting an informal dinner was held, at which all the out-of-town visitors were entertained, the table being spread for fifty covers. The table was beautifully decorated with festoons of electric flowers, an electric fountain and baskets of flowers illuminated by miniature electric lamps. The usual Philadelphia hospitality was very conspicuously shown.

The best evidence of the interest taken in the lecture is the fact that there were over four hundred in attendance and at least one hundred turned away.

#### American Mining Congress Will Meet in Chicago.

The American Mining Congress has selected Chicago as the meeting place for the 1911 convention, which will be the fourteenth annual meeting of this body. The date of the meeting has not been determined, but it will probably be in October.

Among the questions which will be discussed at the Chicago meeting are a workmen's compensation law, the general revision of mineral land laws, and the standardization of electrical equipment in coal and metal mines. The American Mining Congress has had committees at work upon these questions for several years.

At the Los Angeles session of the Mining Congress, held last October, a committee of mine operators and electrical engineers reported a code of rules for the standardization of electrical practice in coal mines, while another committee made a most valued report on the prevention of mine accidents. Both these reports have been published in the *Proceedings* of the Mining Congress.

The committee on standardization of electrical equipment will make another report to the Chicago meeting, embodying such additions to its last report as are suggested by recent discussions on the subject. The membership of the committee is as follows: Samuel A. Taylor, Pittsburg, Pa., chairman; J. R. Bent, Oglesby, Ill.; G. A. Schreier, Divernon, Ill.; Harry M. Warren, Scranton, Pa.; Geo. T. Watson, Fairmont, W. Va.; George R. Wood, Pittsburg, Pa.; W. A. Thomas, Pittsburg, Pa.