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Letter To John D. de Vries *© 1990-2000 v **Only personal use permitted !!!**

BIO: Edward Weston



Edward Weston

By courtesy of Weston Instruments Division,
a Schlumberger Company, Newark, N.J.

Born: May 9, 1850
near Wolverhampton, Staffordshire, Eng.
Died: Aug. 20, 1936
Montclair, N.J., U.S.

British-born American electrical engineer and industrialist who founded the Weston Electrical Instrument Company.

Weston studied medicine at the insistence of his parents; but, after receiving his medical diploma in 1870, he went to New York City, where he was employed as a chemist.

While working with an electroplating company, he decided that a generator would be more efficient than batteries as a source of power for electroplating. He subsequently invented and manufactured a highly successful electroplating dynamo.

Overshadowed by others in the field of lighting (arc and incandescent), Weston in 1886 turned his attention to the design and manufacture of electrical measuring instruments.

In 1888 he organized the Weston Electrical Instrument Company, which became world famous for its high-quality electrical products. Weston became a U.S. citizen in 1923.



Received through:

Charles J. Mulhern, P.E.
June 15 th 1990

Dear Sir,

Ref your letter of March 13, 1990 to Weston Electrical Instrument Corp. Newark N.J., regarding Weston Exposure meters being manufactured by Sangamo-Weston Ltd; which has filtered down to me as of recent date.

I am a former Weston Co. employee (Engineer) retired 1984 after 30 exiting years, and presently in the process of writing a book on the illustrious Dr Edward Weston, who lived from 1850-1936. He was born in in Oswestry, Shropshire and came to America as a young medical Student in 1870. During the first eighteen months in America, he revolutionized the Electro-plating Industry.

He patented the nickel-plating anode in 1875, he also patented the rational construction of the dynamo, and raised the efficiency from +5% to over 90% in 1875. Moreover he gave a public exhibition of Arc Lighting in the city of Newark.NJ, the first in the U.S.A in 1877.

He invented the process for making the incandescent lamp filaments by a Hydrocarbon process, also made lamp filaments from Nitrocellulose into pure fiberless cellulose in 1882. He developed the truly permanent Magnet in 1886 and 1887. He also developed two important alloys, especially for electrical measurement _Constanta having a negative temperature coefficient; and _Manganin, having an extremely low temperature coefficient, Patents No 381304 reissue No.10994 and Patents No.381305, reissued No.10945 in 1888.

In 1887, he invented the first of a series of precision electronical measuring instruments, which were the first high accuracy, direct-reading for measuring electrical quantities in both A.C and D.C.

In 1888 he founded the Weston Electrical Instrument Co., having previously founded Harris & Weston Electroplating Co., in 1873; The Weston Dynamo electric Machine Co. in 1877; and the Weston electric Light Co. in 1880.

In 1893 he invented the shunt circuit and shunt for Ampere measurement, also a stable Voltage Cell, which later became the International standard for the Volt, and well known as --The Weston Standard Cell--

He invented the magnetic drag cup type instrument in 1885, and the low cost but accurate small D.C. ammeter in 1914, of which both are still used in the Automobiles as the speedmeter and the ammeter. From 1875 to approx.1917.

Dr Edward Weston was granted 334 U.S Patents, (of which I have copies of most of them), and alike number of European patents from five countries. During Dr.Weston's long and fruitful life, he also invented -Electric Arc Furnaces, Incandescent lamps which were as good as Edison's or Swan's, if not better, and his filaments were used until the tungsten became available.; Electric Motors; Potential Transformers; Current Transformers; A.C and D.C. Voltmeters, Ammeters, Wattmeters including Polyphase; Ohmmeters; both A.C and D.C Laboratory standards; Stand Cells; Panel Meters in hundreds of sizes, shapes and ranges; Power factor Meters; Control relays; Tachometer Generators; A.C and D.C. Amplifiers; Radio tube (bulb); Radio test Instruments; Insulation testers Multi-range, Multi-purpose Industrial circuit test Instruments; Mutual conductance electronic Radio-tube Analyzers; A.C. Industrial test units; A.C clamp Ammeters and Voltmeters for powerline works; moisture measuring meters; Electrical and Mechanical recorders and Controllers; Thermometers mercury tube, Thermocouple and Bimetal types; Hydrometers for all branches of chemistry; Ground detectors; Humidity indicators; Meggers; Frequency meters; Sensitive relays; Laboratory standard Electrical measuring Instruments; Aircraft Navigational and Engine condition Instruments, including the first-Blind landing Instrument in 1933; Switchboard Instruments, Shunts; Resistors; D.C. Galvano-meters Thermal converters; Copper Oxide rectifiers; Projection Instruments; VU meters; Photoelectric cells initaly used in illumination meters. Controls, Light meters and Foot-candle meters.

Dr Edward Weston and his son Edward Faraday Weston (1878-1971) who's middle name perpetuated his father's reverence for England's great Physicist, began to experiment with exposure-meters by the use of the Photo-electric cell (the magic eye), which Weston was producing, around 1928, 1929 as the elder Weston was a keen Photographer, who saw it as a useful tool.



In 1931, Edward Faraday Weston applied for a U.S patent on the first Weston Exposure meter, which was granted patent No.2016469 on October 8, 1935, also an improved version was applied for and granted U.S patent No.2.042665 on July 7 th 1936. From 1932 to around 1967, over 36 varieties of Weston Photographic Exposure Meters were produced in large quantities and sold throughout the world, mostly by Photographic dealers or agents, which also included the Weston film speed ratings, as there were no ASA or DIN data available at that time. Now, that you have somewhat of a mental picture of the dynamic Dr.Edward Weston.

I revert to 1898, and per an old handwritten crumpled logbook, it appears that he founded the Weston Electrical Instrument Company.Ltd in London, England, as a subsidiary of the Newark Company of the same name, except minus the "Ltd".Two sites for the "English", sometimes the "European" are referred to as -Enfield- and -Surbiton-, and a Mr A.Davey was the manager.

Also Messrs Elliott Brothers, London, England, were involved in Sales. As, I find reference to them being sales-agents. In 1904, there is reference to W.E.I. Co.Ltd, being in or transferred to Surbiton, London, England.In 1936, Sangamo enters the scene, when Weston sold 51% of his interest in the W.E.I.Co.Ltd. to the British Sangamo Company, when the Company name was changed to -Sangamo-Weston,Ltd.-

Incidentally, there was also an American Sangamo Company at that time located in Springfield, Illinois, which produced Watt-hour Meters,& which could have been affiliated with the British Company of the same name. Soon, after the Weston Exposure meters became popular and especially in Europe, the Sangamo-Weston Ltd Company began to assemble the Weston Exposure Meters for sale in Europe, which was possibly a way of avoiding the payment of export or import tariffs at that time.Sangamo-Weston Ltd apparently acted as an Agent for the W.E.I Co. and took care of warranty repairs, as the former Weston Electrical Instrument Co.Ltd had done prior to 1936.

Thus it can be seen why the name Sangamo-Weston Ltd.appeared on the Weston Exposure-meters, which were sold in England, and possibly in other countries in Europe, possibly exception Germany, as Weston had a small company in Berlin, known as -European Weston Electrical Instrument Company Ltd., as the Standard Cell Manufacturing site and German sales office.

Incidentally, the British Sangamo Company was in existence in 1988, as I had a short conversation with the Chief Engineer, who was at the Weston-U.S.A .100th Anniversary, also someone from the Weston Ltd Co. Both of which were subsidiary companies of Schlumberger Corporation. a French conglomerate.(See Weston 100th anniversary booklet). Schlumberger also coincidentally is the owner of the American Sangamo Co, of which the Weston Co. has been tied for several years. As of this time, the once great Weston Electrical Instrument Corporation is gone forevermore, as it has recently been sold by Schlumberger to another conglomerate by the name -Ametec Inc -, which consists of Companies in the Aerospace Products field; of which Weston was not one of them recently.

As of 1984, Weston has been involved in Aerospace only, as Schlumberger sold all the many other lines of measuring instruments etc Prior to the final sale Weston held several worthwhile processes and Patents on Navigational and Aero-engine-functional Instruments and Control systems as well, having been in that field initially, and had been the supplier of instruments used in every spacecraft that has been launched from the U.S.A.. As an example, the Apollo carried (28) Weston Instruments, and there is not an American Airliner, that does not have at least 10 Weston Instruments on board, to help the Pilot reach his destination.

I understand that -Ametec Inc-, did not purchase the Weston name however, the former Weston factory is silent, the people and machinery are gone and the empty buildings in Newark N.J are for sale. I, hope that the foregoing will be of some use to you, and that is not too late in arriving.I, received your letter on July 14,1990, from an old friend of mine who elected to transfer to Ametec.Inc, at

their Sellersville, Pa.factory.

I would appreciate a copy of your forthcoming article on the history of the Weston Electrical Exposuremeter, as mentioned in your letter, Enclosed some other data which may be of some inspirational use to you, which does not have to be returned, as I have duplicates.

Sincerely,

Charles J Mulhern,P.E

On behalf of:

Edward Weston.

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