STEINMETZ - HIS LIFE AND PHILOSOPHY

It is a damp, chilly June day in 1889. Across the wide expanse of New York harbor comes in fitful gusts a southeast wind throwing the never-ending restless waves of the bay against the bleak granite of the Battery.

In such an unfriendly atmosphere we see a slightly built dwarf-like form alight from a launch which has just come from the immigrant liner, La Champagne. His face is swollen from a bad cold - his clothes are shabby and worn. And yet he strides along quickly with nervous, wide steps. His eyes, keen and observant, take in every object or person of interest in the scene before him.

This immigrant, a young man of 24, is none other than Charles P. Steinmetz on his way to face the U. S. immigration officials of Castle Garden, which in 1889

served the functions of the Ellis Island of today.

The young Steinmetz of that bleak day had great difficulty in speaking his broken English to the officials; he could show no funds; he was penniless; no - he had no relatives in America.

Soon he had his answer - he could not enter America - he must return to Europe.

Only the intervention of his traveling companion - a young man of his own age, Oscar Asmussen - who assured the authorities his funds were at the disposal of Steinmetz, enabled that young immigrant to finally pass the portals. How he must have sighed with relief when that ordeal was passed and leaving Castle Garden with his meagre baggage in hand he strode up Broadway to his brilliant future.

I imagine with each step he felt dropping from him the shackles of a Germany whose authorities had planned his arrest for socialistic activities - of a Europe where every city would demand the credentials of his home city of Breslau which he could not produce. But also with each step he thanked Providence for a splendid education in a German university - a fine mind - health and a rich optimism which was to help him in every phase of his future career.

Shortly he had secured a job - German trained students in those days were an asset to America - an America eager to move ahead to its destiny - with railroads to build - homes - yes, cities to be created - a new electrical life to be established - frontiers to be pushed back.

How long do you suppose it took this stripling Steinmetz to become a noted figure in America. Was it ten, fifteen, twenty years? Even twenty years would be remarkable - a penniless immigrant to become a man of note by the time he was 44. Well, I'll tell you. It took Steinmetz with his training and his brain as his assets less than 3 years to become one of the outstanding electrical engineers in America.

Within 3 years from the time he strode out of Castle Garden, he had presented an epochal paper on the law of magnetism before the American Institute of Electrical Engineers and placed a badly needed tool in the hands of every electrical designer.

Oh - yes - the cynic might explain away this miracle - he might tell you it was luck he got a letter of introduction just before leaving Europe to the eminent inventor and manufacturer, Rudolph Eickemeyer- the cynic might mention that Eickemeyer had devised a remarkable electrical measuring device, the electrical bridge, which Steinmetz could use - he might say Eickemeyer became fond of this immigrant and gave him a tiny development laboratory in which to work.

And still I say this was a miracle - which only the freedom, the blithe, buoyant, vigorous air of the United States could produce from the raw materials of a German lad of twenty-seven mixed with a dingy looking factory building in Yonkers which you would not glance at twice - no, not even once if you were driving by it or going by New York Central to the west.

I am going to read you in this connection a little classic in understatement. It consists of a description by Steinmetz of what he did back there in the early 1890's. Here it is: "From Ewing's table of hysteresis losses, however, I derived mathematically a law, the 'law of hysteresis' - - -. This law - - - I published in the 'Electrical Engineer' for December 9, 1891."

Even the great Caesar's cryptic report on the conquest of Gaul - "I came, I saw, I conquered" becomes blatant braggadocio beside this statement, "I derived mathematically a law."

Despite the fact that Steinmetz had to his credit when he died in 1923, the large total of 195 patents in his name covering 195 inventions, he was principally famous in his time for his tremendous mathematical comprehension, or shall I say genius.

In his early work with the General Electric Company, it was this mathematical acumen which rapidly carried him to the top of his profession. Electrical men were trying to design machines to use alternating current but they had no good method of practical calculation. This Steinmetz by 1893 had given them in a final solution, the symbolic method, derived through the application of pure mathematics.

Now let us again note that date, 1893, when Steinmetz gave his first paper on this subject before the International Electrical Congress.

By 1893, Steinmetz had reached the advanced age of 28. It had been 4 years since the lad with the bedraggled form but unquenchable, optimistic spirit, had stepped ashore at the Battery.

I wish time permitted me to go on in the description of Dr. Steinmetz' career with the General Electric Company and the great electrical engineering fraternity of which already he was such a distinguished part.

But I am anxious to touch for a few minutes upon his philosophy.

Dr. Steinmetz was as you probably all know a life time Socialist. This philosophy had flamed out in his youthful strivings in Germany which heaped trouble and impending persecution on his young head. When he came to America where men knew freedom, and did not have to hold secret meetings and flinch with fear when a door opened, he dropped all this militant activity. He became an employee of a great corporation - he strove for its success -

in public statements he repeatedly pointed to the need for such large scale private enterprise. He combined, as I have read and understood his words, an intense idealism and love of humanity with a practical view of work to be done, technical problems to be mastered with the most efficient instrument at hand, the driving, busy industrial anthill known as the American business enterprise.

Through all his business or professional philosophy ran the two golden threads, the first, "There must be progress, there is much to do", and the second, "We must have faith."

He laughed at those in the early twenties who spoke of this period as the electrical age. To him what had been done was all so puny - the vast accomplishments

of the future loomed ahead for him to dwarf the present.

Let me quote two excerpts from him which appear in John W. Hammond's biography of him which all should read -

"I love America" he said. "It took me, a crippled boy, and gave me a chance. I have faith in it, and, through my electrical work, I want to help the America of the future. We will succeed the soonest by giving every one a chance. But we must do things in the most economical way."

"What will electricity do for us yet?" he asked. And then answering this pertinent question: "It will do whatever energy can do for us. Nobody, today or ever, can fix the limits to which the use of electricity may go. We can say only that

it will go as far as human need for energy goes. Electricity is energy, and energy is the basis of civilization."

"We call this the age of electricity, but it isn't. The age of electricity hasn't begun. All that we have done is but preparatory to the ushering in of the electrical age. When the age of electricity comes - as it will - electricity will do for everybody all that it can do for everybody. It will do all this in addition to doing a multitude of things of which we have not yet dreamed.

"I came to America in 1889. It seems a long way back to think where the development of electricity was at that time. It seems a long way ahead to think where it will yet be. For the age of electricity is yet to come. And it will be a great age."

When one reads these statements and others by Dr. Steinmetz, one wonders if he would not wrinkle up his forehead and with eyes dancing in his head mock at the little group of economists in this country who are crying the wail of the pessimist, "We have no more frontiers", "Private enterprise cannot use the savings of the people", "We mustturn to the cold hand of government for industrial progress."

I seem to hear Steinmetz saying "Let us move forward--the hills ahead look steep but beyond are valleys of fertility if we will but strive toward them. Let us have faith in the energies and ambitions of American inventors and businessmen and workers to satisfy the myriad of wants of men, women and children in this broad land - the North American continent."

WWTrench:K
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