

KEELY REMINISCENCES.

Noticing in your issue of Dec. 15th, 1893 a review of a book by Mrs. Bloomfield Moore on "Keely and his Discoveries", which book, by the way, I have not seen, it occurred to me that I might contribute a few interesting reminiscences of the early days of the so-called "Keely motor". My remembrance is very clear as to the facts which I shall state.

I lived in Philadelphia during the decade 1870 to 1880, and first heard of Keely about 1875. He had invented a "generator", a "multiplier" and a "reservoir of force", and according to accounts did a number of very wonderful things with his "vapor". Soon after, I think during the winter of 1875-76, I was invited among others to see an exhibition of the new force at Mr. Keely's laboratory or workshop in Philadelphia. Prof. E. J. Houston was present and about fifty or sixty others, mostly men of business without special scientific or mechanical training.

It would be of little use to go into details of what was done. There was plenty of quasi scientific jargon indulged in by the exhibitor even in those early days. There was nothing said about sympathetic vibrations, or harmonias, as I presume the jargon had not developed to such a pitch of refinement.

The main point with me was to discover whether our exhibitor was self-deceived or not. The opportunity came in a most unexpected way. To show that the generator of the power was empty, Mr. Keely attempted to turn a cock on one end of an iron cylinder and thereby open the cylinder to the air. The cock projecting outward did not turn easily and he seized a pair of gas pliers and --broke it short off near the cylinder. I said to Prof. Houston who stood near, "he must plug that hole." But he did not, although not for a moment did I turn aside, or relax my watchfulness. He dropped the pliers and broken cock and said nothing about it except keep up the jargon of meaningless terms. A few minutes after, on securing the right "indications" consequent on the passage of water through other openings provided therefor, and making a number of passes such as blowing by the breath into still other holes, he got far enough to take off the pressure to show what his vapor could do. To do this he connected a small copper pipe to another cock on the same cylinder, from which he had broken the first without plugging the hole. I concluded naturally that the first was a "dummy" for the purpose of showing that there was no initial pressure in the apparatus.

The "vapor" (compressed air), was passed from the "generator" to the "multiplier" which was supposed to increase its power enormously. Its passage through the "multiplier" was uneventful and I suspected it had the function of

a wash bottle which, listened to by Mr. Keely, gave some idea how fast the vapor was being used, as it would not do to let it out too fast or the experiments would come to a sudden termination.

A "globe motor" was shown, and consisted of a globe of copper about eight inches in diameter with hollow turnings through which the vapor conveying pipe passed to its interior. It got up a speed of 300 or 400 revolutions per minute but gradually, yet it was said to be impossible to stop it by the hand. It was not to be gotten at by the spectators, and the experiment of stopping it was not made. It rattled about in its bearings while revolving, and I would have undertaken to have stopped it with a slight pressure of my little finger.

The "vapor" from the generator was supposed to have filled a "reservoir of the power" through a copper pipe about eight feet in length of one-sixteenth inch bore in a few seconds to a pressure of about 4000 lbs. (shown by gauge on the reservoir), although the capacity of the reservoir was evidently not far from a cubic foot. And, by the way, the reservoir had near its bottom an ordinary globe valve of about one inch pipe size, opening outward to the air. This valve did not hiss or leak air or water. Can it be possible that the entering vapor tube went direct to the gauge and did not communicate with the interior of the reservoir?

The vapor, according to Mr. Keely, condensed at once on falling to 300 lbs. Pressure, yet we were allowed to hear it hiss and even to smell it as it escaped from the end of the pipe, when the gauge showed much less than that pressure. In fact the gauge went steadily down toward the conclusion of the "seance" and very gradually indeed when it reached ten or twenty pounds. It smelled like oily air. The handle of a revolver could be seen projecting from the back pocket of the pair of pantaloons worn by the exhibitor on this occasion. Is not that an eccentricity of genius?

I went to another show of this kind a couple of years later but learned nothing more than I had learned to my own complete satisfaction on the first occasion. There were more etheric vaporings and less experiment. Several subsequent invitations were persistently declined.

I saw in 1879 at the shops of T. P. Morris & Co., Philadelphia, a turned globe of steel three feet in diameter with a six inch opening inside, lying in the scrap metal, a discarded bauble of Keely's. Also two heavy hollow cylinders of forged metal with numerous forged rings shrunk on the outside --section of rings, nearly square about 4 X 4 inches-- diameter somewhat less than two feet. When I saw them the rings were being turned off or removed in a lathe, a rather heavy job, as was also that of getting them on the cylinders originally. "He pays cash, we ask no questions" was the comment of the director of the works, made to me at the time.

Leaving Philadelphia in 1880, my observations ceased.

There were exposures even before that of course. Men eminent in science pronounced the vapor simply compressed air.

You say "Keely may ~~xx~~ have at first himself believed in sympathetic vibrations, and afterwards he may have led on his dupes on the same line in which he himself had gone wrong". If he ever believed so, it was before the birth

of the Keely motor, as I think you may agree after my evidence above given.

The fact is nothing was said about sympathetic vibrations when I attended the early exhibitions. The tuneless motor came later, as did many other things connected with this wonderful motor, wonderful in the fact that despite ~~the fact that~~ its having been lubricated with the money of the credulous for twenty years, it persistently refuses to move. ^{tools} ~~perhaps~~ ^{perhaps} its appearance in London may be a sign that it has ^{re}moved and will move all its belongings there soon.

April 17, 1902.

Mr. T.B. Kinraide,

Jamaica Plain, Mass.

My dear Mr. Kinraide:

I regret that I was called off the other day when you were here and did not have a chance to see you before you left. If you will tell me about what you need in the way of a Crookes' tube I will look over some which I have, and see if there is anything which would suit your purposes. The double ~~focus~~ tubes which are ordinarily made will stand potentials up to four, or five inches or more. They are made for the standard high frequency sets which we have been furnishing for sometime past and you probably know what they are.

I wish again to thank you for the favor of the copies of the enlargements of the spark photographs.

Very truly yours,

Ed. C. J.

July 23, 1906.

Dr. F. F. Strong,

West Rindge, N. H.

My dear Dr. Strong:-

I note your request under date of July 18th, and would be glad to assist you in the matter as far as I can consistently. I will first call attention to such publications as have been made by me in relation to high frequency. Unfortunately, I have no copies of these papers, but may be able to find one or two later and send them to you.

In the London Electrician of Sept. 12, 1890 is a letter in regard to a high frequency alternating machine which I had built, this being, as I believe, the first high frequency machine, and the first reference to high frequency work.

There are articles under the headings "Notes on Alternating Currents at Very High Frequency", Electrical Engineer (New York) March 11, 1891, Electrical World, Mar. 14, 1891.

As a reference to alternating currents of high frequency, Electrical Engineer of April 1st, 1891 and the London Electrical Review, April 17, 1891, also a reference to the same review, April 3, 1891.

There is a "Discussion on the Phenomena of Currents of High Frequency, Electrical Engineer", April 22, 1891.

Experiments on the Electrical Discharge in Vacuum Tubes, Electrical Engineer, June 24, 1891, London Electrical Review, May 10, 1891.

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'06-7-25.

Physiological Effects of Alt. Currents of High Frequency,
Elec. World, Mar. 14, 1891; Elec. Engineer, Mar. 11, 1891; London
Elec. Review, Mar. 21, 1891 and the London Electrician, Aug. 19, 1891.

Notes on Alt. Currents of Varying Frequency, London Electrician,
Mar. 20, 1891.

Phenomena of Alternating Currents of Very High Frequency,
Elec. World, April 4, 1891, also the Electrical World of April
25, 1891.

Induction by High Frequency Discharges, Elec. World, Feb. 20
1892, Elec. Engineer, Feb. 17, 1892, London Electrician, Mar. 4, 1892,
London Elec. Review, Mar. 18, 1892.

Further Experiments with Condenser, Spark and Air Jet,
Elec. World, Feb. 27, 1892, London Electrical Review, Mar. 25, 1892.

Dynamic Induction at High Potentials and Frequencies,
Electrical World, April 2, 1892, Electrical Review, London,
April 15, 1892.

High Frequency Electrical Induction, Paper read before
Society of Arts, Boston, Technology Quarterly, Vol. 6, No. 1, 1893.

Curious Effects of Hertzian Waves, Elec. Engineer, July 4, 1894.
On Hertzian Waves in Laboratories and Electro-Plating Works,
London Electrician, July 13, 1894.

Notes on the Effects of High Frequency Currents Passed Through
the Body, Elec. Engineer, Oct. 10, 1894.

Effects of High Frequency Electrical Discharges passed
through the Body, Transactions American Electro-Therapeutic Associ-
ation, 1894.

Dielectric Strength of oils in Alternating Potentials,
Elec. Engineer, Feb. 12, 1896, Elec. World also, same date.

Electricity at High Pressures. Lecture before New York Electri-
cal Society, Mar. 29, 1889. Published in Pamphlet form, and I think
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F.F.S.-3.
'06-7-23.

I can send you a copy of this pamphlet.

Apparatus for Obtaining High Frequencies and Pressures,
Electrical World, Oct. 14, 1899, Electrician, Nov. 3, 1899.

It is, of course, impossible, without comparison of dates of early experiments to settle any question of priority, no such comparison having been made, but you will find in the pamphlet on "Electricity at High Pressures" a reference to some experiments by Prof. Rowland of John Hopkins University which, indeed, involve the principle of high frequency induction from one set of turns to another insulated therefrom. Joseph Henry, many years ago, also induced by a leyden jar and condenser discharges, currents in adjacent circuits, and Henry pointed out first of all, the nature of the leyden jar discharge. I believe I was the first to make a study of coils with air cores, that is, without any iron, for the production of high frequency induction, except in so far as the Henry experiments and the Rowland experiments referred to involve the same idea. I was, I believe, the first to employ an air jet on the condenser spark to increase the sharpness of the oscillations. Outside of these facts, and without any proper comparison of dates, it would be impossible to make any other statement. Mr. Tesla, undoubtedly, was very early in the work, and may have been prior, and I think he was undoubtedly prior as to certain features of the work. It would be, I think, best, however, in a work such as you are preparing, to simply refer to the published papers and descriptions which, in the absence of other data, must stand. I should, in fact, dislike very much having to be put in the position of making any statements on the point, and would ask, therefore that what I have said above be regarded as for your own personal

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assistance, and not to be published. You will see that in the nature of things there is no criterion for an authoritative statement.

I will forward photograph, if I can, as soon as possible.

Yours very truly,

*Elihu Thomson,
Jr.*

P. S. I am sending you a copy of the pamphlet on "Electricity at High Pressures."

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(Ed.) Elmer Thomson.

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