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Professor John S. Penn,
Department of Speech,
University of North Dakota,
Grand Forks, North Dakota.

My dear Professor Penn:

I hope you will pardon this delay in response to your request for information concerning Professor E. M. Terry. We have just been going through a reorganization and this, coupled with the necessity of maintaining progress on our projects, has kept us all very, very busy.

I believe that I can contribute the most information bearing on your project related to the development of radio broadcasting at the University of Wisconsin and Professor Terry's contribution, if I reply to your questions in narrative form rather than attempt to give short answers to each specific one. In so doing, it may help if I review somewhat briefly my own relationship to Professor Terry.

In late 1915 or 1916 I decided to change my major at the University of Wisconsin from mathematics to physics. At that time, Professor Terry became my faculty adviser and the man in charge of my research work which was directed first towards the Bachelor's degree in physics which I received in 1917 and later towards the Master's degree. My research work and thesis had to do with the design, construction and operational characteristics of three element vacuum tubes. I worked directly under Professor Terry and in fact, as time progressed, we worked closely together. All of the glass blowing involved in the construction of the first tubes produced at Wisconsin was done jointly by the two of us. He specialized in making certain parts and I in others. I did most of the exhausting of the tubes and, of course, we were jointly concerned with operational testing.

These tubes were used in experimental radiotelephone tests between Madison and Great Lakes, Illinois, and in experimental radiotelephone broadcasting. As I dictate this, I am looking at one of the tubes constructed shortly after we moved to the new Physics Building. This tube, still in its original wooden mount, enjoyed a long life in an experimental radiotelephone transmitter.

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You, no doubt, have considerable information with respect to Professor Terry's scholastic training. He studied advanced physics in Germany although this was before I knew him. At Wisconsin, in addition to advanced courses in physics and the supervision of the research projects of graduate students like myself, he taught the basic physics courses required of all second-year engineering students. He was an inspiring teacher and supervisor. I consider it one of the privileges of my life to have worked with him so closely.

There have been times when I felt that the proper definition of a physicist is a man who if he saw a practical application of his work would run away from it as fast as possible. Professor Terry was not that kind of a physicist. He was tremendously interested in the practical application of what he did. By this I do not mean that he gave any less consideration to the academic study of basic science. Rather, he realized that science was a living thing and that discoveries in it would and should have a great impact on the lives of people.

I recall instances which illustrate well Professor Terry's basic philosophy with respect to the proper relationship between pure and applied science. In 1916, while almost bogged down by the basic problems I was meeting in my own research work, I became considerably interested in Malcolm Hanson's more interesting activities at 9XM, the University of Wisconsin's experimental radiotelegraph station located just across the hall from my laboratory. I fear I may have shown some slight tendency to neglect my basic, but at the moment rather colorless, research project in favor of the more glamorous communication activities taking place across the hall. Professor Terry gave me a lecture on the importance of perseverance in the pursuit of scientific knowledge for its own sake regardless of whether or not that knowledge had immediate practical application and public interest.

I do not believe that in the early stages of our work we were much concerned with the practical applications of vacuum tubes or of radiotelephony. Professor Terry knew that radiotelephone broadcasting had a great future but I doubt if he, or anyone else, had an accurate idea of just what direction the development of this art would take. I recall about 1917 or 1918 going home one night after an extended series of two-way tests by radiotelephone with the Navy station at Great Lakes, Illinois. The apparatus we used was entirely of our own manufacture and assembly. By this I do not mean that we actually built the four 500-watt DC generators used to supply the plate circuit power or the high impedance chokes but we did assemble these parts plus our own tubes in a complete radiotelephone transmitter using the back to back modulation system we

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developed completely independently at that time. My thoughts were something like this -

"Here is an ideal system for distributing news, market reports, information, etc., to large numbers of people in an area surrounding the transmitter. All the listeners need are receiving sets. What a marvelous medium this is for extending the sphere of influence for a state university or an educational institution!" Knowing nothing of advertising or of commercial activities generally, I did not envision the development of the American system of broadcasting so broad as it has grown to be and such a part of American life and neither did Professor Terry. I thought it would be our schools and educational institutions which would operate these stations. In my thoughts on the subject I, of course, referred to results of my talks with Professor Terry and, therefore, it is safe to assume that our viewpoints were much alike. At that time I had had little experience with the limited vision held by many educational executives, a handicap which resulted later in all of the best broadcast channels going to commercial interests rather than to educational institutions which first developed the art.

In the early days of broadcasting at Wisconsin, there was considerable emphasis on market reports, weather information, etc. Broadcasting was both by radiotelegraph and radiotelephone. There was considerable mail received from listeners but I do not know what became of it.

One of the projects on which Professor Terry worked and in which our vacuum tubes were used had to do with the development of methods for detecting submarines. This work was carried on during the first World War in conjunction with the Navy's laboratory at New London. Having been denied admittance to the officers reserve corps, for physical reasons, in the spring of 1917 I left Madison and joined the research and development staff of the Western Electric Company (now Bell Telephone Laboratories). I returned late that year to help in the instruction of radio operators and service men for the U. S. Signal Corps and to continue the research work in the application of vacuum tubes to radiotelephony and for other purposes. One of the government men with whom we had contact at that time was a Major Culver of the Signal Corps, who in civilian life was a professor at the college at Beloit. I do not recall others.

I cannot give much direct information with respect to the attitude Professor Terry's colleagues within the department had towards his work as I was too low ranking a member of the faculty to be called

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into policy meetings. However, the following may give you some idea of the atmosphere at the Department and in the College of Letters and Science. I held a fellowship in 1918-19. When I obtained my Master's degree in June 1919, I was strongly supported for an instructorship at an annual salary of \$1000.00 per year, by Professor Terry and by other members of the staff. The Dean of the college finally agreed to the proposed salary. However, he allowed me only an assistant's rating on the grounds that no man without a PHD should be given the high rank of "Instructor in Physics."

On January 1, 1920, I went to the University of Minnesota as an Instructor in Electrical Engineering at a salary which was exactly twice that I had been getting at Wisconsin. Very shortly thereafter I was made an Assistant Professor and still later an Associate Professor of Radio Engineering which position I held until I left the University of Minnesota in 1928, to enter business for myself.

X The above may illustrate the academic viewpoint held by those in administrative authority in the College of Letters and Science at the University of Wisconsin at that time. In my opinion, Professor Terry was not advanced in rank and salary as rapidly in the Department of Physics as he should have been in the light of his ability and the contributions made by him. This may have been due to some eyebrow lifting because Professor Terry did not run away from the practical applications of our research work but rather embraced them. There were always those who looked upon this procedure as rank heresy on the part of a physicist. He was a pure scientist but he did not object to a reasonable amount of contamination from the practical.

X X Aside from his research ability, Professor Terry was an outstanding teacher. I considered him the finest teacher in the Department of Physics. I say this with due regard to my high opinion of other members of the faculty for whom I also had high regard. The department had on its staff one other outstanding teacher, a man whose sole interest was teaching because he loved it. This man who had no interest in research found advancement slow also. Perhaps I can best describe the situation which appeared to exist by a statement Professor Terry made to me at one time some months before I left. It was to the effect that if I desired to remain in the Physics Department I would find that my promotion would depend more upon the results of my research work than upon my teaching ability: I do not attribute this situation so much to the administrative staff of the Physics Department as to the general academic atmosphere at that time and policy determination at higher level.

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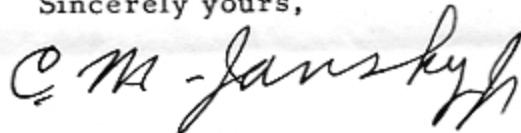
Everyone liked Professor Terry and many of us loved him. If his work did not receive the credit at the University that it should have while he was alive then the underlying reasons were probably these. First, not enough credit went to him for his outstanding teaching ability. Second, the surrounding atmosphere was such that his basic research work appeared to have more the characteristics of applied research than pure research.

I regret that I cannot give you additional names of individuals who worked closely with Professor Terry. Unfortunately, Malcolm Hanson is deceased, having been killed in an aeroplane accident in Alaska during the last war. G. R. Greenslade is now with the Flannery interests in Pittsburgh and should be able to give you valuable information.

I hope that the above reminiscences and comments will prove helpful. I consider it one of the privileges of my life to have worked as closely with Professor Terry as I did. If it appears that in this letter I have written quite a great deal about myself, my excuse is that my experiences and impressions are illustrative of the impact Professor Terry had upon those he taught and supervised. Any success I may have had as a teacher, as a director of undergraduate and post-graduate research at the University of Minnesota, and as a consulting radio engineer since I left teaching, I owe largely to his inspiring example and instruction.

If I can be of any further help, I will try to do so.

Sincerely yours,



C. M. Jansky, Jr.

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