Dr. YOSHIO NISHINA, His Sixtieth Birthday

Dr. Yoshio Nishina's sixtieth birthday will come round on December 6th, 1950. On this happy occasion, I, as one of his old pupils, should like, by way of expressing my hearty congratulation, to celebrate not only what he has done in physics, but also the great and important part he has played and will still play in the development of general culture and science of this country.

When he graduated from Tokyo Imperial University in 1918, he intended to devote himself to the study of electric engineering. But after he entered the Institute of Physical and Chemical Research here, he came to be interested in pure physics, and so during his long stay in Europe from 1921 to 1928, too, he gave himself wholly up to that study.

Does it not show that he has a mind both very brilliant and flexible that Dr. Nishina who had been educated to be an electric engineer proved to be an excellent scholar in pure physics? His research works cover a very wide scope, extending over not only theoretical physics and experimental physics, but even biology, agriculture, and medical science. Even within the limit of physics, his research activities cover almost all its branches such as quantum theory, theory of elementary particles, X-rays, atomic nucleus, and cosmic rays,—the result of his extraordinary enthusiasm and energy to carry out research works.

It is needless as well as impossible to enumerate here one by one all the results of these many-sided researches of his, for he has done a very important and significant work which by itself will be enough to immortalize his name.

And that is his study of the scattering of hard X-rays or γ-rays by a free electron. During his stay in Europe, Dr. Nishina made a theoretical study of this problem with Dr. Klein, a Swedish theorist, and evolved from it the famous Klein-Nishina formula. How widely this formula is being used, how important a part it is now playing, in the field of nuclear and cosmic ray physics, is a well-known fact to anyone who has any knowledge of the present-day physics.

Apart from these excellent research achievements, his existence has a special significance to us physicists of Japan, firstly because it was no one but he that brought the seeds of new physics into this country and secondly because deep impressions and strong stimulations were given to young students and researchers by him through his character and his enthusiasm at once persistent and energetic. If it were not for him, the younger generation in every branch of science in Japan would have been quite at a loss.

Dr. Nishina, who had spent his days in Europe with Lord Rutherford at Cavendish Laboratory, and with Dr. Bohr at Copenhagen, had grown with the growth of new physics, absorbing a fresh and active atmosphere of its centres, and personally going through new methods of its study. So, when he came home later, he tried to introduce and transplant these methods and atmosphere into this country. How pleasant and exciting it was to us younger people to listen to his stories of his own experiences at those centres of new science in Europe! How deeply impressed and influenced we were by his zealous academic interest through his stories and deeds!

He did not only encourage younger people morally, but, as soon as Nishina Laboratory was made in 1931 in the Institute of Physical and Chemical Research after his return from Europe, he set about his great work of making this laboratory a research centre of atomic nucleus and cosmic rays. We can well imagine how hard it must have been to realize that

great plan in this country of those days, which was economically poor as well as lacking in general sympathy and understanding towards pure studies. A laboratory required for research in new physics, whether it be nuclear physics or cosmic ray physics, is a laboratory of a very large scale which is furnished with a monster of a crane above our head and a gigantic high-tension apparatus weighing as much as a few hundred tons, and which has an electric source and a machine shop attached to it besides—in short, it looks like a factory, so to speak. How laborious a task it must have been, and how painstakingly he must have worked, to enlighten the people and make them understand that a research in pure physics needed such a big "factory." But at last his earnest campaign of enlightenment succeeded, and a nuclear research laboratory was made in the Institute of Physical and Chemical Research and two cyclotrons were set there in 1935. The result of his campaign was not limited to that only, but some universities came to have their own "factories" of nuclear physics furnished with such majestic apparatuses as cyclotrons and so forth, for people at large were pursuaded by him and began at last to perceive the importance of the study of atomic nucleus.

Here in his Nuclear Research Laboratory, Dr. Nishina wanted to carry out his great plan of research, not only in pure nuclear physics, but also in its wide application to biology, to agriculture, and even to medical science. Here, however, the Pacific War broke out, and it became difficult for him to continue his research, much more so to carry out his new plans and new ideas. Thus his grand conception collapsed.

Since the end of the War he has been and is, as the president of the Scientific Research Institute that succeeded the former Physical and Chemical Research Institute, making efforts to carry out its aim by good management though under extraordinarily difficult conditions. Thus he has turned now his elastic and versatile ability and untiring energy from his academic life to a new life of an administrator of a research institute. And he is, I hope, competent enough to accomplish the difficult task which is, in our post-war Japan, even more important and difficult than research itself.

He is now also endeavouring, as vice-president of Japan Science Council, to contribute to science administration and to promote international co-operation in science. We now only wish and hope that the great scientist of world-wide fame who is also the father of new physics of Japan will be as healthy and as active as ever, because we expect much from him in these hard times of Japan and the world.

Sin-itiro TOMONAGA

Nov. 20th, 1950

Obituary Notice:

In the cource of the proof of this number, on Wednesday evening, January 10, 1951, Dr. Y. Nishina was stricken by a cancer of the liver. Death came a few months after going to hospital in Tokyo. Here we offer our cordial condolence.

Jan. 11, 1951 M. K.