

To Peter Preiswerk in the occasion of his 60th birthday

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To Peter Preiswerk in the occasion of his 60th birthday

It is a fact that very few among the many who more or less occasionally meet Professor PETER PREISWERK at CERN, either while attending a Seminar or in his well ordered office, know that he is one of the very distinguished European Physicists of my generation. According to his human characteristics he appears a quiet earnest gentleman working hard within the frame of a well organized schedule and always eager to extend his knowledges in the most various fields.

His work seems only stimulated by a high sense of duty. If beside the sense of duty and the intimate intellectual fervor other ambitions are pushing him, they are so rarefied to be imperceptible to the sound, extrovert, often aggressive physicists of the new generation with whom he deals every day. But as it could be foreseen and easily discovered – whenever a less superficial acquaintance is established with him – he is also a clear minded man, a man of endurance and strong will and to these qualities is due the happy development of the Nuclear Physics Division at CERN, directed by him since 1961. CERN has other good reasons of appreciation and gratitude for Peter Preiswerk. He is one of the “founder fathers” and one of those who in view to consolidate the idea of the creation of this Institution offered beside enthusiasm all his activity. First he was in the Commission of the Scientific Co-operation called in December 1950 by the European Cultural Centre which proclaimed the desirability of building a large particle accelerator for high energy research. In the following year Professor Auger invited him as one of the Consultants concerned with the project to establish such a European Nuclear Research Centre. After the signature of the provisional Convention of CERN in 1952 he was appointed Deputy-Director of the Laboratory Group and was member of the Executive Group. With the definite Organization of CERN he became (1954) Director of the Site and Building-Division and Member of the Leading Board.

When the first construction period – the more delicate and technically difficult – was over (1958) he joined the Syncro-Cyclotron Division directed by Professor W. GENTNER. Then he was appointed director of the N.P. Division, one of the largest of the many now existing at CERN: for the number of people involved; for the variety of research and experiments on the most advanced frontiers of the Physics pursued in it; for the amount of extremely relevant contributions given by it in the last few years to the fascinating branch of Science, named “Physics of elementary particles”.

Being a man of my generation I am inclined to believe that now and then, as it happens to me, PETER PREISWERK feels a kind of uneasiness, almost of embarrassment, facing the huge research programme of CERN, the corresponding budgets, the

approval of experiments costing millions of Swiss Francs and engaging dozens of persons; the communications by the Physicists of the N.P. Division of some brilliant result to International Conferences attended by more than five hundred people.

Physics, the Physics with which he, slightly more than twenty years old, started his scientific activity was completely different and its development almost unforeseeable.

He studied Physics (from 1938) at the University of Basle and during 1929 and 1930 at the University of Berlin, where he worked in Kohlhörster's cosmic radiation laboratory. After his doctor thesis, made under Hagenbach on "Optical-rotation of isosteric molecules", guided by his interest in the fundamental problems of science he went at the beginning of 1934 to the Radium Institute of Madame Marie Curie. He collaborated there with FRÉDÉRIC JOLIOT and IRÈNE JOLIOT-CURIE, who had just discovered artificial radioactivity.

A fellowship of the Carnegie-Curie foundation has been granted to him in 1935. Under the direction of IRÈNE JOLIOT, he initiated, with HANS VON HALBAN, the study of the formation of radioelements of the fourth radioactive family, which does not exist in nature, but can be created by irradiation of thorium by neutrons. The main work during his Paris period which he did together with HANS VON HALBAN was concerned with slow neutrons – the field opened by the Fermi group in Rome and on which at that time only a relative small number of physicists were actively working.

Among this work may be mentioned that, independently from the Rome group and in the same period, he established the existence of a group of neutrons in thermal equilibrium with the hydrogen containing substances in which the neutrons are slowed down; he proved that also the chemical binding of hydrogen has an influence on the slowing down process. He then demonstrated for the first time the existence of the diffraction phenomena of slow neutrons. He proved also that the selective absorption of slow neutrons is due to definite energies of the neutrons. Developing a new method to determine the energy of the resonance levels, he made for the first time a measurement of the width of a nuclear resonance level for capturing a slow neutron showing the phenomena of self-inversion of neutron-resonance-lines.

At the end of 1936 Prof. P. SCHERRER called him to join as scientific collaborator the Institute of Physics of the ETH in Zurich, where he lectured from 1946 and was made Professor in 1950.

In Zurich he initiated the construction of a 0.8 Mev Van de Graaf-generator and a 7 Mev Proton-Cyclotron. During the war years, he devoted his time to the construction of a cyclotron. After its completion he undertook with his colleagues and students a great number of studies of problems of nuclear spectroscopy. In particular he made a verification in positron and K capture decay of the Fermi-theory of betadecay, systematic studies of decay schemas of a great number of radioactive elements, especially of isomers, showing among other aspects that the electron capture process is accompanied by a continuous gamma spectrum. Finally he found, together with P. Staehelin, regularities in the gamma spectra of nuclei with an even number of protons and an even number of neutrons, regularities which gave the basis for the interpretation of a class of levels of nuclei as rotational levels.

I met him for the first time in Zurich during an International Conference on Nuclear Physics and Cosmic Rays in 1936. The war was a long intermission in our acquaintance, and I had the pleasure to work in close collaboration with him about twenty years afterwards. His human qualities, his scientific interests were unchanged; only his work was different, as it was for me. When two years ago I left CERN our acquaintance had evolved in a cordial friendship. I hope that he will consider these few sketchy lines upon him merely as a demonstration of my affection, and he will be kind enough to forgive all negligences and possible mistakes.

GILBERTO BERNARDINI

Pisa – January 1967