OCCASIONAL ADDRESS: 50TH ANNIVERSARY OF PROF. H. NIEWIADOMSKI'S PROFESSIONAL ACTIVITY AND 25TH ANNIVERSARY OF THE DEPARTMENT OF FAT CHEMISTRY AND TECHNOLOGY

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Mister President, Your Excellency Rector of the Gdańsk Technical University, Ladies and Gentelmen

First of all I would like to emphasize that it is a great honour and pleasure for me to have the oportunity to speak to you about the 50th unniversary of prof. Niewiadomski's professional activity and 25 unniversary of the Department of Fat Chemistry and Technology. Ths is because I am proud to be one of his pupils and followers.

Prof. Niewiadomski was born on 22 July 1905 and he studied at the Chemical Faculty of the Technical University in Lwów. The degree M.Sc. was awarded to him 1927 and the degree doctor of technical science 1935. First he worked in the Kalium Salts Industry as a chemist. Since 1930 he worked in a Potatoe Starch Factory in Toruń. Then he was a chief engineer in the rice starch factory in Tczew. During the war he was working on technical positions in a alcohol distillery. After the world war prof. Niewiadomski starts with a reconstruction of the Polish Fat Industry organizing the margarine factory in Gdańsk. From that time he bounds his scientific activity with the chemistry and technology of fats.

Already 1949 prof. Niewiadomski becomes professor at the Gdańsk Technical University, where the Department of Fat Chemistry and Technology was created 1950. He was the organizer of this Department and elaborated a unic specialization in Poland. Practicially all his co-workers are absolvents of this specialization. Nearly 400 engineers were specialised during the time from 1950-1975 in the Department of Fat Chemistry and Technology.

The scientific activity of prof. Niewiadomski was first of all devoted to the chemistry and technology of rapeseed oil. On this problem there were published by him and his co-workers papers on the usability of rapeseed oil as a ram material for edible and technical purposes. The co-working group consisted mainly of his pupils. They cleard up the structure of glycerides and acompanying substances and first of all of chlorophyls and sterols and their transformations which they undergo during the technological process. The results have been used as a basis for the improvement of raffination methods by means of a selective bleaching or the choice of optimal deodorisation parameters. He also was the initiator of investigations which led to the chemical transformations of rapeseed oil fatty acids for the plastics production.

Since 1957 he iniciates the investigation of phytosterols which are found in the byproducts which are obtained during the rafination of plant oils and in the recidue after the distillation of tall oil. A method was alaborated for the fractional cristalization of rapeseed oil sterols to obtain the brassica-sterol. Investigations of sterol transformations during the rafination process allowed to establish that they undergo oxidation followed by dehydration and therefore steridic hydrocarbons are to be found in the refined oil. This results gave a new information on the consequences of industrial rafination on the quality of edible oils. Also the influence of sterols on the autoxidation kinetics of plant oils as well as the influence of the sterols on the reversion of soybean oil was established. But the main achievement in this domain where the results concerning the kinetics and thermodynamics of fatty acids autoxidation. The course of the autoxidation process of the unsaturated fatty acid methyl esters was cleared and an original equation was derived which anables the theoretical calculation of all the reaction stadies. Also the dependence of chlorophyls autoxidation on the oxidation of fatty acids was stated.

Prof. Niewiadomski and his co-workers published a lot of papers concerned to the modern lipid analysis based on such methods as polarography, conductometry, oscillopolarography, potentiometry, molecular distillation, which all can be used for the analysis and raw materials and technical processes control. But the main achievement here was the construction of the first gas liquid chromatograph in Poland which was the prototype of an industrial series which now is extended in new models.

Another valuable result was obtained on the bio-synthesis of fats. It was stated that on the composition of the fat produced by microorganisms a decisive influence is exerted by the food but not by the kind of the microorganisms as it was in a widespread opinion till 1969.

This scientific activity was accompanied by a very intensive aducation of young scientific workers. Under his protection those people mainly, his pupils achieved the doctor of science degrees, doctor of technical science or master of science.

But prof. Niewiadomski's activity was not only concerned to science and didactic. Namely he has a great part in the organization of science in our country. And so he was for 8 years the deputy rector of our university, and for 2 years the deputy dean of the faculty of chemistry. Since 1954 he is the president of scientific council of the Fat Industry Institute, and he is much involved in the research programm of that Institute. Since 1961 he is a member of the scientific council at the secretary of the Food Industry Ministerium in our country.

It was also his idea to organize in Gdańsk four international congresses dealing with problems on chemistry and technology of fats. He is a member of international scientific organizations such as International Society For Fat Research, International gesellschaft für nahrungs und vitalstoff-forschung, International Union of Pure and applied Chemistry, American Oil Chemists' Society.

It is only one week that prof. Niewiadomski returned from Japan where he was visiting professor invited by the Japan Society for Promotion of Science.

The above described scientific and organizational activity was priced very high by the Polish authorities.

Mister President, Ladies and Gentelmen.

Finally, I would like to express the hope in my own and in the name of all prof. Niewiadomski's followers that we all will have also in the future possibility to have access to his great experience and knowledge of the chemistry and technology of fats.