

IN MEMORIAM

ALEKSANDR ALEKSANDROVICH PONOMAREV (1907-1967)

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Aleksandr Aleksandrovich Ponomarev, a Member of the Editorial Board of the Journal "Khimiya Geterotsiklicheskikh Soedinenii" [Chemistry of Heterocyclic Compounds], Doctor of Chemical Sciences, and Professor at Saratov University, one of the greatest Soviet scientists in the field on the chemistry of heterocyclic compounds and a talented teacher, died unexpectedly on September 29, 1967.

A. A. Ponomarev was born on November 15, 1907 in Moscow in the family of a civil servant. On leaving Stravropol High School in 1923, Aleksandr Aleksandrovich entered an industrial and economic technical school. After leaving here he worked as an instructor in an Oblpotrebsoyuz [Regional Union of Consumers' Societies].

In 1931, he joined the chemistry faculty of Saratov University, but in 1933, he was recalled to work in the Saratov Committee of VLKSM [All-Union Lenin Communist Association of Youth]. He returned to the University in 1935, graduated with distinction in 1938, and became a post-graduate student in the Department of Organic Chemistry in 1938. From this time, all the activity of A. A. Ponomarev was continuously connected with Saratov University. After his post-graduate training under the direction of the leading organic chemist, Corresponding Member of the Academy of Sciences of the USSR, Honored Worker in Science Prof. V. V. Shelintsev, Aleksandr Aleksandrovich carried out a study in the field of the production of alkyl-substituted monovinyl and divinyl ketones from carboxylic acids, and on June 21, 1941, he defended a thesis in competition for the degree of Candidate of Chemical Sciences. A. A. Ponomarev served at the front during World War II. In 1945 he returned to Saratov University. Here, under his direction in the Department of Organic Chemistry original scientific work on the study of the chemistry of five-membered heterocycles and, in particular, furan derivatives, was established and developed. In 1948, A. A. Ponomarev was given the rank of Docent and in 1950 he became Protector of the University for Scientific Work. From this post he was called in 1952 to a doctoral course in the Department of Organic Chemistry of Moscow University and after he had completed this he successfully maintained his doctoral thesis on the subject "Investigations in the field of furan aldehydes and ketones and their derivatives."

After 1955, A. A. Ponomarev was Professor and Director of the Department of Organic Chemistry of Saratov State University and after 1957 also Scientific Director of the Problems Laboratory of Hydrogenation and Catalysis. The direction of the scientific work of the department and the Problems Laboratory were crystallized as a result of the investigations carried out in the department since 1947. Under the direction of A. A. Ponomarev investigations were carried out on heterogeneous catalysis in the field of heterocycles and aromatic compounds (hydrogenation, dehydrogenation, dehydration). Processes for hydrogenating organic compounds using nickel, copper, copper-chromium, cobalt, and also platinum and palladium catalysts, were studied. The catalytic properties of ruthenium and rhodium were also widely investigated and these metals were used to obtain new types of catalysts which were employed for the catalytic hydrogenation of heterocyclic and aromatic compounds. The use of the new ruthenium and rhodium catalysts enabled effective methods to be developed for the production of industrially important substances including many monomers for heat-stable fiber-forming polymers and medicinal substances.

Together with A. A. Balandin, he also determined and gave a theoretical explanation of the features of the sequence of the reactions of hydrogenation and hydrogenolysis of chemical bonds of different types of nickel catalysts.

Another direction of the investigations directed by A. A. Ponomarev was the organic synthesis of natural and synthetic compounds of biological importance and their intermediates. Together with

theoretical questions of the chemistry of heterocycles, work in this field was connected with the development of new industrial and laboratory methods for obtaining substances of pharmacological interest and chemotherapeutic agents and intermediates for their synthesis.

A. A. Ponomarev discovered the formation of pyrrolidine alcohols and compounds of the cycloalkanopyrrolidine series in the hydrogenation of the appropriate furan amines in aqueous acid solution. From these substances syntheses were effected of pyrrolidylpropionic acids and their esters and hydrazides and pyrrolizidones, many of which proved to be extremely promising for use in medical practice as preparations with sedative, antitubercular, and other properties.

A large series of studies by A. A. Ponomarev was devoted to the intramolecular electrolytic alkoxylation of γ -furylkanols, a reaction which he had discovered, and the production in this way of spiranes of the 2-methoxy-1,6-dioxaspiro[4,4]nonene group. This reaction was also extended to the case of the formation of polycyclic spirane systems and spiranes containing three heteroatoms. New derivatives of the pyrrole and isoindole series were synthesized by an original method from the products obtained by electrolytic methoxylation.

A detailed study was made of the intramolecular catalytic dehydration of furan amines in order to obtain 1-azabicyclanes and also for the purpose of studying the stereochemical features of the process and establishing a stereodirected synthesis. A method was developed for determining the configuration of the isomers of the 3-alkylpyrrolizidines. Substitution reactions in the 1,2-dihydropyrrolizidine series were studied and the possibility of obtaining aza dyes from them was shown.

Considerable research on the synthesis of various new substances of the nitrofurane series led to the production of Furazonal and Furakrilin—new drugs approved by Farmkomitet for use in medicine. In addition, from various furan derivatives (tertiary furan amines, furylaminopropionitriles, ureides of furanmonocarboxylic acids, etc.) a number of new methods for the synthesis of previously unknown groups of organic compounds, many of which possess various physiological and anti-microbial activities, were developed.

The results of A. A. Ponomarev's investigations were published in 250 papers and authors' certificates. His monograph "Sintezy i reaktsii furanovykh veshchestv" [Syntheses and Reactions of Furan Compounds] is the reference book for all those working in the field of furan chemistry.

The indefatigable scientist did not limit his activity to scientific work. He was a brilliant organizer: on his initiative and by his direct participation, the First and Second All-Union Scientific Conferences on the Chemistry of Furan Compounds were organized and held in Saratov (1959 and 1962).

Aleksandr Aleksandrovich devoted great attention to the education and training of qualified chemists. Under his direction nine candidates' theses were produced and maintained. Many of his pupils are carrying out important pedagogic and scientific work in universities and scientific research institutes and occupy leading posts in industry.

A. A. Ponomarev was a talented and able teacher. For many years he gave lectures in the general course of organic chemistry which were always exceptionally interesting, logical, and fascinating. He treated his students with great respect while being at the same time a demanding but also a kind and considerate teacher.

A. A. Ponomarev combined his enormous scientific teaching work with great public activity. Member of KPSS [Communist Party of the Soviet Union] since 1939, he was always in the very center of public life. He was a Komsomol leader in his student years, then deputy of the Saratov Municipal Committee of Workers' Deputies, member of the Party Committee, Chairman of the Saratov State University Local Committee. This is a far from complete list of Aleksandr Aleksandrovich's public posts.

Since 1955, A. A. Ponomarev had been a member of the All-Union Scientific Committee on questions of the use of pentosan-containing raw materials. Since 1965, he had been an active member of the editorial board of the journal "Khimiya Geterotsiklicheskikh Soedinenii." For several years he had been chairman of the Chemical Section of the Technical and Economic Committee of the Saratov Sovnarkhoz [Council of National Economy].

For service to his mother country, A. A. Ponomarev was awarded the Order of the Red Star and medals and for his successful scientific and teaching activities the Diploma of the Praesidium of the High

Committee of RSFSR [Russian Soviet Federated and Socialist Republic].

A. A. Ponomarev was always characterized by high principles, clearness of purpose, enormous capacity for work, and a demanding nature towards his pupils and colleagues which was accompanied by exceptional benevolence and mildness. He died full of creative plans and projects. The bright image of Aleksandr Aleksandrovich Ponomarev, a great scientist, talented teacher, devoted citizen of his country, and a man of great soul, will always be preserved in the memory of his pupils, comrades, friends, relations, and all who knew him.