



Editorial

Post-war biochemistry in Wrocław

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The biochemistry in Wrocław was initiated by Professor Tadeusz Baranowski, a prominent coworker of the renowned Polish biochemist Professor Jakub Parnas from Lwów. Professor Baranowski arrived in the largely destroyed Wrocław in May 1945 as a member of a group of scientists responsible for restoration of academic institutions. He became head of the Department of Physiological Chemistry at the Faculty of Medicine of Wrocław University, supported by two colleagues (also from the lab of Parnas) – Irena Mochnacka and Wanda Mejbaum-Katzenellenbogen (the author of an article on ribose determination published in 1939 and distinguished by *Current Contents* in 1970 for ‘the post-war record-breaking number of citations’).

The Department of Physiological Chemistry (later Biochemistry) was for several years the only biochemical laboratory in Wrocław and it attracted many young people, students and graduates of medicine, chemistry, pharmacy and biology, who were interested in biochemical research. Studies on metabolism of invertebrates, characterization and clinical application of ACTH were carried out, and peptide synthesis was initiated (e.g. glutathione and its analogs, later bradykinin). However, glycolytic enzymes became the main subject of research in the Department. The achievements included isolation, crystallization and characterization of

muscle and erythrocyte phosphoglycerol dehydrogenase (known as „Baranowski’s enzyme”, subject of two articles in *Journal of Biological Chemistry*, in collaboration with A. and E. Cori, U.S.A.), phosphoglucomutase, phosphoglycerate kinase, aldolase, phosphofruktokinase, enolase and pyruvate kinase. The group of Mejbaum-Katzenellenbogen in 1955 published a tannin method of protein determination popular at that time and was involved in studies on protein-tannin interactions (publication in *Nature* in 1959) and problems of clinical chemistry.

How different everything was in that time, no funds, no plans and reports, only some basic reagents and a lot of enthusiasm and a strong will to overcome all obstacles. When the first quantitative amino acid analysis of ACTH active fragment was to be done using a starch column (the first method of Moore and Stein), ninhydrin and methyl-cellosolve were synthesized and when a home-made fraction collector stopped working during the several-day experiment, the fractions were manually collected day and night. When the synthesis of glutathione and its analogs was planned for another project, only glycine was available. Therefore, glutamic acid was obtained from wheat flour bought in a food shop, and cysteine was prepared from hair collected by helpful hairdressers. Professor Baranowski was a ‘demanding’ boss, and many assistants

left the group after few weeks or months of unsuccessful efforts. But those most dedicated who 'survived' became successful biochemists (mostly in Wrocław and some in other cities in Poland or abroad) and retrospectively greatly appreciated this 'tough school'.

The first 'branch' of the Department of Physiological Chemistry was the Department of Biochemistry at the Institute of Immunology and Experimental Therapy which, thanks to efforts of another outstanding and world-famous Polish scientist, Professor Ludwik Hirszfeld, was founded by the Polish Academy of Science in 1952 and finally accepted by the Government in February 1954. The Department of Biochemistry at the Institute was directed by Professor Władysław Mański who started studies on blood group ABH antigens. Unfortunately, Professor Hirszfeld died on March 7th 1954 and the Institute was named after him (the Ludwik Hirszfeld Institute of Immunology and Experimental Therapy). In the following months most of Hirszfeld's coworkers (including Mański) left the Institute due to decisions reflecting the political situation at that time. To allow the Institute to exist, several professors of Wrocław Medical Faculty were asked for cooperation and Professor Baranowski was offered the position of Head of the Biochemistry Department. He transferred a group of his coworkers from the Medical School to the Institute and decided to perform research more related to immunology. The early immunochemical studies included blood group MN antigens, that was a continuation of Hirszfeld's contribution to blood groups and led later to elucidation of the structural basis of M and N antigenic specificity. Other successfully developed fields included structure and immunological properties of bacterial antigens, and comparative studies of serum and colostrum immunoglobulins that led to the detection of proline-rich-polypeptide (PRP), an interesting immunomodulator studied recently as a promising drug for Alzheimer's disease. However, enzymology was also represented, studies were carried out on pyruvate kinase and on clin-

ically important enzymes (e.g. γ -glutamyl transpeptidase and then others). There was a collaboration between both laboratories of Professor Baranowski. One of the effects of this collaboration was the paper on the new method of preparation of D-glyceraldehyde-3-phosphate, published in Polish (!) in *Acta Biochimica Polonica* in 1961, which was selected by *Current Contents* in 1992 as 'This Week's Citation Classic', cited over 120 times.

Later on, many new biochemical laboratories arose in Wrocław and new directions of research developed. Most, if not all, of these newly created laboratories were directed by biochemists and from the 'school' of Professor Baranowski. Among these early 'bosses' were Janina Kwiatkowska-Korczak (follower of Professor Baranowski at Medical Academy, her senior coworkers were Elżbieta and Marian Wolny), the late Wanda Mejbaum-Katzenellenbogen, and Bronisława Morawiecka (Faculty of Natural Sciences of the University, where Aleksandra Kubicz also moved), Wanda Dobryczycka (Faculty of Pharmaceutical Sciences of the Medical Academy), Marian Kochman (accompanied by Andrzej Dżugaj, University of Technology), the late Stanisław Karpiak (Academy of Agriculture) and finally a group at the Hirszfeld Institute: Elwira Lisowska, Józef Lisowski, Andrzej Morawiecki, Elżbieta Romanowska and the late Apolinary Szewczuk. Some of the early days assistants of Professor Baranowski obtained positions at Faculty of Chemistry, e.g. Ignacy Siemion (University), or Przemysław Mastalerz (University of Technology), or became directors of clinics, the Clinic of Internal Medicine (Barbara Kowal-Gierczak), and the Clinic of Haematological Diseases of Children (the late Janina Bogusławska-Jaworska). Now all these people are already replaced by their younger coworkers. Therefore, all biochemists in Wrocław can be called 'grand-children' of Professor Tadeusz Baranowski, or 'great-grand-children' of Professor Jakub Parnas.