

Pourbaix Marcel

Born: September 16, 1904 – Myshega (Russia)

Died: September 28, 1998 – Ukkel (Belgium)

Biography

His father leaves Belgium in 1902 to take up the management of a steel plant at Myshega, some 200 km south of Moscow, where Marcel is born. At the start of the Russian-Japanese war in 1905, the family flees to Northern France (Blanc-Misseron) where Paul's father is a consultant on an engineering project. In 1906 the family returns definitely to Belgium (Elsene).

After finishing his secondary studies at the atheneum in 1922, he graduates at the University of Brussels (ULB) as civil engineer specialized in chemistry and electrochemistry. He remains for a few years as assistant to professor Dony-Hénault. In 1928 he finds a job as a researcher at the newly established UCB (Belgian Chemical Union). He is detached to the Technische Hochschule at Charlottenburg but returns to the UCB as secretary of the department "General Research"

The Main Subject of his Research

In 1934 professor Dony-Hénault takes him in his team as chief-assistant. Two years later he trains at the Technische Hogeschool of Delft and acting on the advice of professor Frans Scheffer, he takes up on his return to the ULB the study of potential/pH-diagrams in relation the corrosion equilibria. Starting from Nernst's Law, he develops a series of *Pourbiaxdiagrams*.

A week before the outbreak of World War II, he presents his doctoral thesis "Thermodynamics of Dilute Aqueous Solutions. Graphical Representation of the Role of the pH and Potential".

The jury however disagrees about the sign of the electrode potential and his thesis is rejected. Due to the closure by the Germans of the ULB during the war, the argument is taken up again in 1945.

In 1945 Pourbaix founds together with a small team of electrochemists (among them J. Gillis and A. Julliard for Belgium) the *Comité International de Thermodynamique et Cinétique* (CITCE – International Committee for Thermodynamics and Kinetics), soon reaching a membership of 1400 and renamed in 1971 « *International Society of Electrochemistry* ».

Supported by Fabrimetal and the *Association des Ingénieurs de Belgique* (AIB), Pourbaix remains till 1978 head of this research centre "*Centre Belge de l'Etude de la Corrosion*" (CEBELCOR)

In 1952 Pourbaix is the founder of the Commission of Electrochemistry of IUPAC. Finally a definite agreement about the chaotic state of affairs prevailing in the signs of the potentials of Pourbaix is reached!

During the fifties and early sixties, Marcel Pourbaix and his team produce a series of potential/pH-diagrams of all the elements and publish the "*Atlas of Electrochemical Equilibria*", first in French in 1963 and in an English translation in 1966. In 1962 he introduces the concept of a protection potential against the propagation of "localized corrosion" in relation with the peculiar electrochemical conditions in occluded electrochemical cells.

His team publishes further diagrams about the electrochemical equilibria in aqueous solutions and in the presence of a gas phase. At the age of 90, Pourbaix still supervises this last research.

In 1960 Pourbaix is appointed lecturer at the ULB, becoming professor in 1968 and honorary professor in 1974

His Family Life

In 1934 Marcel marries the sculptress Marcelle Trojan. The youngest of their three sons, Antoine is head of CEBELCOR till he retires in 2004...