Personalities on the Meridians of the Scientific Universe

Elie Carafoli was born on the 15th of September in Veria, a town situated very close to Thessaloniki, Greece, from Aromanian parents. He started school in Veria. In 1915 he left together with his family in Serbia and remained for a short period of time in Bitolia.

The beginning of the war forces him to leave again, this time to Bucharest, to aone of his uncles. He continues his studies at „*Gheorghe Lazăr*" High school and at „*Mânăstirea Dealu*" Military High School. He always remembered a story from his childhood about Nistor Kostic, a peasant from Divic village which was close to his birthplace, who launched himself from the summit of the Pind Mountains and was flying like a bird. Maybe this story made him go in 1919 to the Polytechnique School of Bucharest, recently transformed into the National School of Bridges and Roads, where he intended to build a glider. In 1924 he became an electromechanical engineer.

Joining the community of specialists in fluid mechanics

He continued his studies between 1924 and 1928, at University of Sorbonne where he got his Ph.D. degree in physics-chemistry sciences with the thesis entitled *Contributions to the Theory of Sustentation in Aerodynamics.* At Paris, he works at Saint-Cyr Aero-technique Institute where, together with its manager, Professor Albert Toussaint, builds a hydro-mechanical installation for observing the movement spectres abound the aviation corps. This installation was later renamed "Toussaint – Carafoli vat". During this period, in academic circles, there were hot debates regarding the physics meaning of the resultant force on an aerodynamic construction.

Elie Carafoli publishes the paper entitled *The fight between the modern aerodynamic theories and the rational mechanical laws* which puts an end to this dispute, and which made him accepted among the specialists in fluid mechanics and aerodynamics. Between 1926 şi 1928 he published scientific works and studies which brought him recognition internationally, among which we mention *The Theory and the Draw of Aerodynamic Profiles, The Influence of the Wings on the Aerodynamic Properties of the Portant Surfaces, Aerodynamics of the Plane Wings, Experimental Research on monoplane Wings.* Based on these results, he drew up and made the profiles of plane wings with a rounded board, known under the name „*Carafoli profiles*".

Professor of Polytechnique in Bucharest

He comes back in the country and sets up in October 1928 the Department of Aerodynamics and Fluid Mechanics at the Poly-technique School of Bucharest where he will work for 45 years. After two-year activity in Romania, he finalizes together with the French engineer Lucien Virmaux the design of the first Romanian plane fabricated at IAR Brasov Plant, called CV-11 (Carafoli-Virmaux), a monoplane with a low wing, an

original concept which has been generalized in the modern worldwide aviation during the years. For carrying out the specific research, he built during 1928-1930, in the yard of the Poly-technique School of Bucharest, an aerodynamic tunnel, officially inaugurated in 1931, being the first installation of this type from the South-East of Europe, having remarkable performances for that time.

Plane designer and constructor of IAR Romanian Planes

In 1938 he built the hunting plane IAR – 80 (Romanian Aeronautics Industry) which is considered to be at its time one of the best planes and which held in 1940 the world record for specific power at aviation planes with piston. He

elaborated a method for the study of rectangular, trapezoidal and triangular wings which are known under the name „*delta wings*". Apart from his teaching and scientific activity, Elie Carafoli was also chief engineer, and then manager, of the Company of Building Planes IAR - Romanian Aeronautics Industry from Braşov where he designed, built and tried the planes of IAR-13, IAR-14, IAR-15 and IAR-16 types with remarkable performances for that time and comparable with the best achievements in the world. One of these planes was considered to be one of the six best planes in Europe at a contest that took place in Bucharest in 1931.

He wrote books, he was given medals

The scientific activity is represented by more of 200 scientific articles and 14 books included in the aviation thesaurus. Here are some examples: *The Aerodynamics of the Plane Wings* (Paris, 1928), *Aerodynamics* (1951) translated into German (Berlin, 1954) and into Russian (Moscow, 1955), *The Aerodynamics of High Speeds* (1957), translated into Russian (Moscow, 1958), *Experimental Studies on Monoplane Wings*, *Conical Movements at Hypersonic Speeds*, published in China (Beijing,1955), *The Wing Theory in Hypersonic Flight* Oxford, 1969), *The Dynamics of Incompressible Fluids* (1981), *The Dynamics of Compressible Fluids* (1983). For his activity research in the aerodynamics field, he was awarded the Prize „***Louis Breguet***" (Paris, **1927)** and ***„Silver Medal"* (1928)** awarded at Sorbonne by the National Society of Progress Encouragement, the Diploma **Paul Tissandier** awarded by the International Aeronautics Federation at the Congress from Los Angeles (**1956),** The Great Medal **Gauss** that is awarded only one a year to a savant chosen from the whole world by Braunschweg Scientific Society from Germany for „*remarkable and innovative work*", the Medal „***Apollo 11***" awarded by NASA in **1970**, Diploma and Medal ***„Tiolkovski***" at the 27th of March **1981.** In Romanian he was awarded the title **EMERITUS MAN OF SCIENCE of Socialist Republic of Romania**, being given the **First Class State Prize, the First Class Labour Prize, the First Class Scientific Prize, the Second Class *„Steaua Republicii"*.**

He was elected a full member of the Romanian Academy (on the 12th of August 1948), and from 1961 he was in charge of the Commission of Aeronautics of the Academy. He was also a full member if the International Academy of Astronautics, vice-president of the International Academy of Astronautics **(1965-1967**), executive president (**1968-1969)** of the International Academy of Astronautics, post-president of FIA (**1971-1973).** He was elected honorary member of the Royal Society of Aeronautics from the Great Britain.

He dedicated a great part of his energy to evidentiate the pioneers of the world aviation: Traian Vuia, Aurel Vlaicu, Henri Coanda, Gheorghe Bothezat etc.

He died on the 24th of October 1983 at Bucharest.

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