

# Aero-internationalist

Kenneth Owen

**The Universal Man: Theodore von Kármán's Life in Aeronautics.** By Michael Gorn. Smithsonian Institution Press: 1992. Pp. 202. \$24.95, £19.50.

FOR Theodore von Kármán, the sight of Henry Farman flying a Voisin biplane at Issy-les-Molineux on the outskirts of Paris on 21 March 1908 lit a fire of enthusiasm for aeronautics that was to burn brightly for more than half a century. Best known in his later years as head of NATO's Advisory Group for Aeronautical [later "Aerospace"] Research and Development (AGARD), the Hungarian-born mathematician and physicist forged a remarkable, multifaceted career in Europe and in his adopted country, the United States.

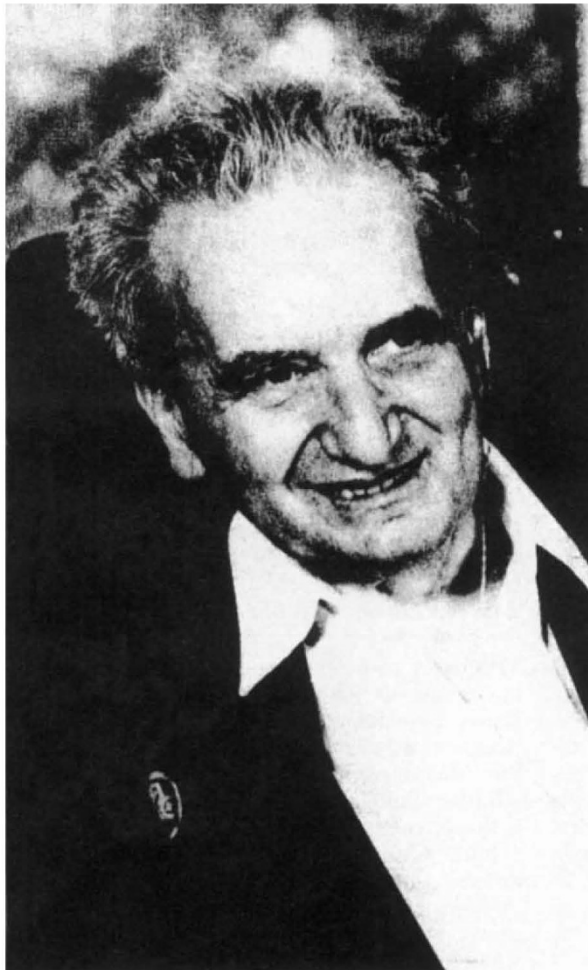
Acknowledged and celebrated internationally by his peers, von Kármán's influential contributions to aerodynamic theory need no repetition today, nor does Michael Gorn attempt this. His book sketches the main outline of his subject's life with a broad but perceptive brush. It is a complex picture, mixing theory and application, teaching and conviviality, astute lobbying and the search for scientific truth.

Born in Budapest in 1881, von Kármán studied engineering in Budapest, followed by graduate study in mechanics at Göttingen University under Ludwig Prandtl. His contributions to fluid dynamics included the explanation of 'vortex sheets', which extended the understanding of flow based on Prandtl's boundary-layer theory; his contribution to Germany's aeronautical science included building up the resources and reputation of the Aachen Technical University and Aerodynamics Institute, and applying these resources to Junkers aircraft and Zeppelin airships. By the early 1920s his international reputation was secure.

But the key event in von Kármán's career was his move from Europe to the United States in 1930, at the age of 49. It took Robert Millikan of the California Institute of Technology at Pasadena and philanthropist Harry Guggenheim four years to seal the deal, offering the Hungarian two directorships — of the Guggenheim Aeronautical Laboratory at Caltech (GALCIT) and the Daniel Guggenheim Airship Institute.

At the Guggenheim Laboratory, work

on aeronautical structures and aerodynamics fed into the designs of Douglas, Lockheed, Boeing and other west-coast companies. After an abortive attempt to collaborate on rocket propulsion with Robert Goddard, von Kármán established a rocket team at GALCIT. The



From *The Universal Man*

**Von Kármán (1881–1963): a pioneer of supersonic flight.**

team's work led to 'jet-assisted take-off' aircraft experiments using solid-propellant rocket units and to the formation of Aerojet General Corporation. In 1944 the GALCIT team was expanded to become the Jet Propulsion Laboratory.

During the Second World War, in addition to many other commitments, von Kármán was asked to form a group of leading aeronautical scientists to advise the Pentagon on airforce research and development. Thus the Army Air Forces Scientific Advisory Group was born. It took determined lobbying, not to say conspiracy, to ensure that the

new, postwar US Air Force set up a strong, continuing research and development organization that included von Kármán's group.

It took even more determined lobbying for von Kármán to implement his greatest single achievement — to mount a European equivalent of his advisory group as part of the newly formed North Atlantic Treaty Organization. The resulting NATO Advisory Group for Aeronautical Research and Development, AGARD, opened for business in the Palais de Chaillot in April 1952, with von Kármán as chairman. At the age of 70, he had achieved his postwar ambition — to move back to Europe and live in Paris. AGARD's substantial contributions to aeronautical science lay ahead.

Von Kármán packed a prodigious and varied amount of activity into his life, and Gorn's account concentrates on the main threads. Well researched and prodigally referenced, the narrative holds the reader's attention throughout, with only a few discontinuities to disturb the flow. No new insight could be expected, but the book's main value is in providing an accessible version of von Kármán's complete story.

From Gorn's description of the various stages of von Kármán's life — whether in Budapest, Göttingen, Aachen, Pasadena, Washington, or on the international scene — aspects of his subject's personality emerge: an original thinker, with an ability to communicate; an ambitious scientist, with a touch of arrogance; an unconventional, inspired and inspiring teacher; and an exuberant man, who used his charm to good effect. He threw great parties and enjoyed wine, women and (possibly) song.

Gorn describes a von Kármán persona that will be familiar to aeronautical conference-goers of the 1950s and early 1960s: "the bemused old Hungarian professor with the conspicuous hearing aid, the rumpled clothes, the black beret, and the Rabelaisian wit". But few of those who are old enough to remember him as an elder statesman at conferences, or who struggled as students with von Kármán vortex sheets, will be fully aware of his early days in Europe and his middle years in California and the Pentagon — in short, of his fascinating life. Gorn tells it well. □

*Kenneth Owen is at the Science Museum Library, South Kensington, London SW7 5NH, UK.*