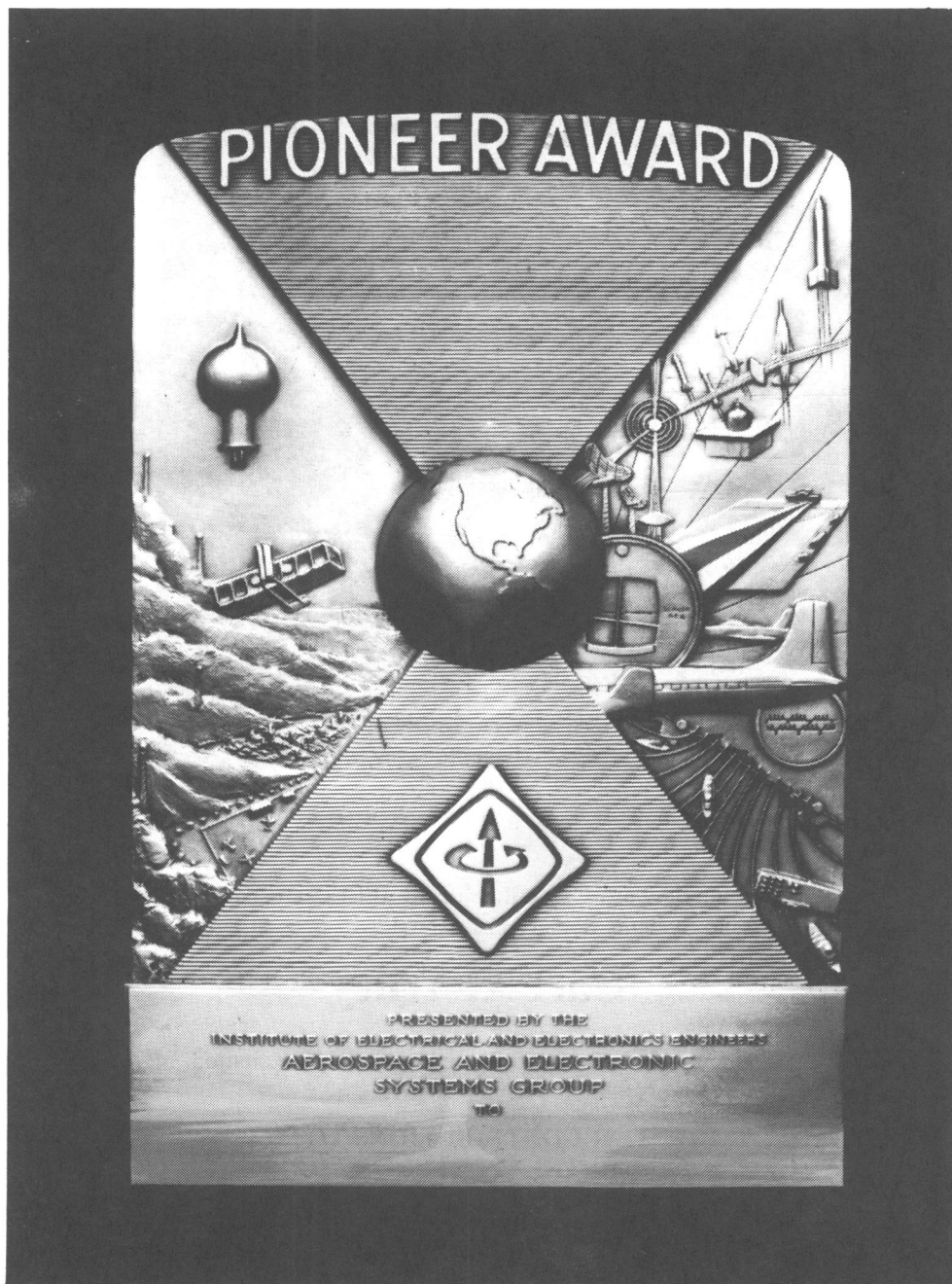


# 1985 Pioneer Award



## 1985 Pioneer Award



The Pioneer Award Committee of the IEEE Aerospace and Electronic Systems Society has named

### **Carl A. Wiley**

as the recipient of the 1985 Pioneer Award. The citation reads:

**FOR CONTRIBUTIONS TO  
SYNTHETIC APERTURE RADAR**

The Award was presented at NAECON on May 23, 1985.

**Carl A. Wiley** is Chief Scientist, Technology Division, Space and Communications Group, Hughes Aircraft Company. His recent interest has been in radar and radiometric earth-imaging from orbit. Orbital remote sensing and measurement are included.

He is a Fellow and Life Member of the IEEE.

Prior to joining Hughes, he was with the Autonetics Division of Rockwell International and its predecessor, North American Aviation. In this period from 1962 to 1978, he was, at various times, Manager of Advanced Radar Dept., Manager, Sonar Dept., and Chief Systems Engineer of the Astrionics Division.

During this time, he was involved in the study, design, construction and flight test of: LOCO, a meter-wavelength foliage-penetration SAR; SINCO, a SAR/MTI type of radar using synthetic coherence; a "suitcase" optical SAR processor in collaboration with Dr. Robert Horsch; VOLPHASE, a ferrite scanned radar antenna; VOLFRE, a freq-freq scanned multimode radar; the KC-130 ground-mapping "wing array", and a synthetic-aperture homing radar.

He also was involved in electro-optic image projectors, compliant-tube acoustic lenses, design of semiconductor devices, design of RAP-mode sonobuoys; SHAMU, a buoyant-rise vehicle for flow-noise research; as well as measurement microwave radiometers. He was proposal manager for the COBRA MPRF radar, ERTS, and the VOYAGER Martian Lander.

From 1953 to 1963, he was President of Wiley Electronics and Vice-President, Research of Giannini Scientific, its successor as of 1962.

Programs were ASTAR, the first squint-mode SAR; SAR acoustic simulators; altitude-image correlation guidance, AIM: sperical-reflector antennas and first airbourne mapping radiometer, MITHRAS, in collaboration with Dr. Allan Love.

From 1949 to 1953, he was Engineer-in-Charge, Goodyear Aerophysics, Litchfield Park, AZ. Here he invented, designed and flight-tested the first synthetic-aperture radar, DOUSER. The patent was "Pulsed Doppler Radar Methods and Means," #3,196,436. No interferences were declared by the Patent Office. It was placed under secrecy orders August, 1954.

He has about 25 patents and applications in the fields of radar, antennas, radiometers and solid-state devices. They include: correlation guidance leading to ATRAN; barium titanate as a piezoelectric material—ferroelectric parametric amplifiers; vibrating gyros; with Bill Sen, the first "brute force" linear-array sidelooking ground-mapper; and the radiometric imagers SPINRAD and RADSAR.

Papers include a chapter on Airbourne Radar Navigation and SARS in *Avionics Navigation Systems*, Kayton & Fried (ed), Wiley & Sons; Noise Radiated from a Turbulent Boundary Layer, Vecchio & Wiley, pp 596–601, JASA53, #2, Febr. 1973. First successful computation of boundary-layer radiation. Also, "Are the Clipper Ships Gone Forever?", May 1951, Astounding Science Fiction where solar-sailing and gravity-assisted trajectories are first proposed.