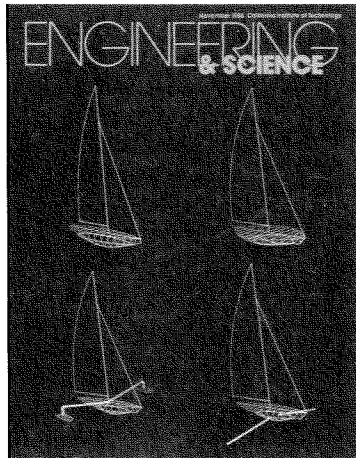


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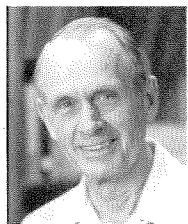


Hot Yachts

On the cover — Computer graphics compare a conventional 12-meter yacht (top left), such as those currently competing for the America's Cup in Australia, with three innovative alternatives to the yacht's heavy keel, which normally provides upright stability. In his article, "The Boat That Almost Was," which begins on page 2, Francis Clauser explains why solutions such as a broad-beamed hull (top right), pontoons on outriggers (lower left), or underwater ailerons (lower right) could make an America's Cup yacht go faster.

Clauser, the Clark Blanchard Millikan Professor of Engineering, Emeritus, readily admits that he's not a naval architect. But as a participant in the aeronautics revolution in the 1930s, he has retained an interest in applying scientific solutions to problems previously left to intuition. His reputation reached the sailing world, and he was recruited by the *Eagle* syndicate to be chief scientist in the Newport Harbor Yacht Club's effort to win the America's Cup.

Clauser earned all his degrees from Caltech, his PhD in 1937 under Theodore von Kármán. After spending the war years at Douglas Aircraft Company, he established the aeronautics department at the Johns Hopkins University in 1946. He remained there until 1965, when he took the post of academic



vice chancellor at UC Santa Cruz. He finally returned to Caltech in 1969 as chairman of the Division of Engineering and Applied Science. Clauser became professor emeritus in 1980.

The computer graphics of Clauser's ideas on the cover and in the article were created by Bob Bolender, a first-year grad student in mechanical engineering. He programmed the designs in Caltech's Engineering Design Research Laboratory, which is under the direction of Erik Antonsson, assistant professor of mechanical engineering, who took the pictures.

Capital Ideas

At last year's Research Directors Conference, sponsored by Caltech's Industrial Associates, William J. Perry delivered an enthusiastically received keynote address on "Entrepreneurship and Advanced Technology." Perry, who earned his MS from Stanford and PhD from Penn State (1957), is a former Undersecretary of Defense for Research and Engineering and is currently president of H&Q Technology Partners, Inc., in Menlo Park, California. Before entering government service he helped

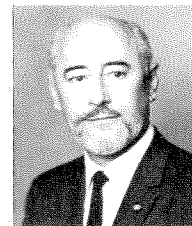


found ESL, Inc., and worked with Sylvania/GTE.

An article adapted from his address begins on page 14. Information about the 1987 Research Directors Conference can be found on page 32.

Jet Start

On October 31, 1936, near the future site of the Jet Propulsion Laboratory, the jet age was born. On that date, just 50 years ago, Caltech graduate student Frank J. Malina and his cohorts conducted the first test-firing of a liquid-fueled rocket motor.



Malina went on to co-found JPL with Theodore von Kármán. In 1946 he left Caltech for a job with UNESCO in Europe. In his later years he settled in Paris and devoted most of his time to art — he was a pioneer in the kinetic art movement and the founder of *Leonardo*, an influential art journal. Malina died in 1981.

"The Rocket Pioneers," which begins on page 8, is adapted from an article Malina wrote for *E&S* in 1968, with the addition of some material from the oral history he gave to the Caltech Archives. (A separate article on the Archives can be found on page 19.)

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