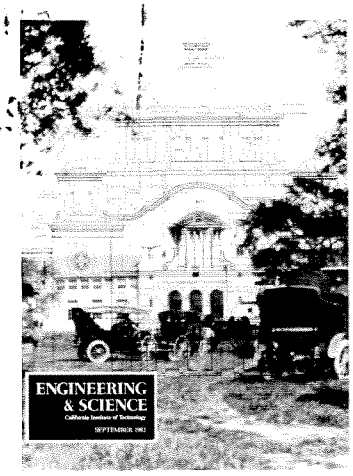
In This Issue



Looking Back

On the cover — a view of Caltech's first building on its present campus, both as it really looked and as its architects visualized it. Throop Hall, originally dedicated as Pasadena Hall on June 8, 1910, was paid for with money raised by the citizens of Pasadena, and it housed the entire institution until 1917. For more photos of the early look of Caltech, see "A Unified Vision," which begins on page 13.

Second Sight

While Charles Elachi doesn't claim second sight for himself, his research on the sensing of remote objects by radar has given him a remarkable glimpse of what lies beneath some surfaces. He has been leader of a group at JPL that built and employed the radar apparatus carried on the second flight of the space shuttle, and he has done considerable research on the theory of electromagnetism. Last spring Elachi gave a Watson Lecture on some of the surprising results of all that looking down not only at but into the earth. "Seeing under the Sahara: Spaceborne Imaging Radar," which begins on page 4, is adapted from that lecture.

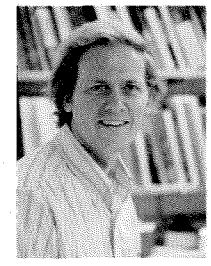
Elachi is a Caltech alumnus (MS '69, PhD '71), who is currently a senior research scientist at JPL and a lecturer in electrical engineering on the campus. A native of Lebanon, he originally came to Pasadena from Grenoble, France, where he had received a BSc in physics at the University and an engineer's diploma at the Polytechnic Institute.

Honorable Mention

John Miles, who is professor of applied mechanics and geophysics and vice chancellor for academic affairs at UC San Diego, may have one of the most spectacular degree-earning records in Caltech alumni history. Five of them were awarded to him in three consecutive commencements — a BS in 1942, two MS's in 1943, and an Engineer's degree and a PhD in 1944. From 1945 until 1961 he was on the faculty at UCLA. Then — after three years as professor of applied mathematics at the Institute of Advanced Studies of the Australian National University — he returned to the United States and UC San Diego.

Miles has had a distinguished career. He is a member of a number of professional and honorary organizations, including the National Academy of Sciences; and the American Society of Mechanical Engineers awarded him its prestigious Timoshenko Medal for 1982. "An Applied Mathematician's Apology," which begins on page 9, was Miles's speech on that occasion.

Thinking about Sight



David Van Essen, associate professor of biology, received his BS at Caltech in 1967 and then went away for nine years, returning as a faculty member in 1976. In the interim he got a PhD at Harvard in 1971 and then went abroad for further study at the University of Oslo in Norway and at University College in London.

Van Essen is interested in discovering the ways visual information, transmitted from the eyes, is processed in higher centers of the monkey's brain, and he has become an expert in the field. It is a field with great potential for useful application to human problems. Knowledge of the function of the many anatomically distinct visual areas located in the cerebral cortex can, for example, provide valuable insights about the capacities for visual perception and recognition shared by monkeys and humans. "Insight into Sight," which begins on page 16, is adapted from several lectures Van Essen has recently given on his specialty.

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