SwRI Celebrates 60 Years

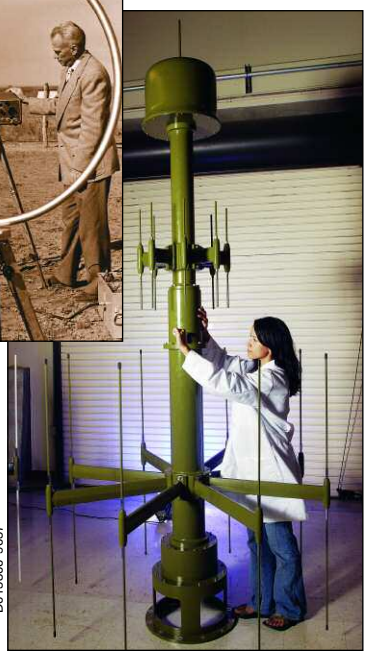
The Institute responds to the changing needs of clients and the nation

Sixty years ago, as the world was emerging from a devastating war, the United States found itself in a unique position of power and prosperity. Completely mobilizing economic, industrial and scientific capabilities for the war effort had brought about rapid technological advances in almost every sector, including military technology, transportation, industrialization and manufacturing, medicine, and communications and electronics.

National leaders, such as Dr. Vannever Bush, head of the wartime National Defense Research Committee, fostered the bonds between industry and government created during the war to cultivate continuing technological advancement that would drive peacetime prosperity. In addition to creating the National Academy of Sciences and similar organizations, several independent research organizations were formed, such as the Stanford and Midwest research institutions. Some were directly associated with industries, others with universities.

In this environment, Thomas Baker Slick Jr., an oilman educated at Yale, was able to channel his intellectual curiosity, philanthropic drive and wildcatter's love of the gamble to create a center for scientific research in the public interest. Establishing Southwest Research Institute as an independent applied research and development organization just outside San Antonio, far from major industries or an eminent university, was a risky venture, but his wildcatter's instincts appear to have paid off as SwRI turns 60 this year.

Electronic signal intercept advances played a critical role in the Allied victory in WWII. For more than 50 years, the Institute's signal exploitation, direction-finding antennas and related tracking technology have served as vital military systems, particularly shipboard antennas built to withstand the rigors of the sea. Burgeoning activity crowding the communications spectrum and the complexity of modern signals are the latest challenges SwRI specialists are overcoming, to isolate and exploit the signals of interest in the congested airwaves.



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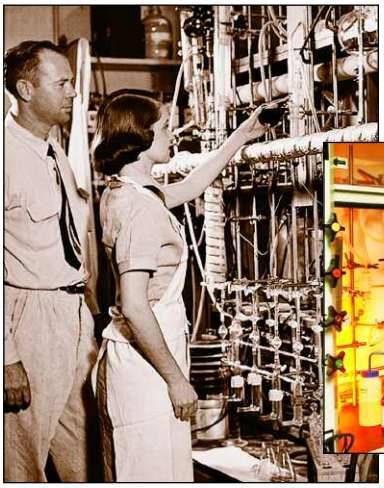
Antennas and Geolocation

Early SwRI project work also included continuing the automotive and fuels and lubricants advancements started during the war. The Institute has since become the largest independent fuels and lubricants testing organization in the world, conducting laboratory, dynamometer and fleet services for clients worldwide. One of the longest running programs is the U.S. Army-owned, SwRI-operated fuels and lubricants research laboratory, which has contributed to military readiness for 50 years.

Postwar prosperity led to suburban sprawl and increased automotive use. SwRI's automotive fluids expertise led to research and development in vehicle technology, where engineers advance the state of the art in engine and vehicle systems to create higher performance and more reliable automobiles. Increased automotive traffic contributed to rising air pollution, and SwRI was one of the early pioneers in quantifying and characterizing engine exhaust emissions. The Institute continues to be a leader in emissions research, with a focus on new techniques to lower emissions, both in conventional engines and by applying new technologies, such as alternative fuels, hybrids and fuel cells.



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Chemistry and Chemical Engineering

The paired photographs shown below illustrate some of the long-standing programs that have kept the Institute at the forefront of research and development for six decades.

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Automotive Science

As the postwar era gave way to the Cold War and the space race, SwRI continued advancing a wide range of military and related systems, from missile technology to avionics and submarines. The Institute also is involved in monitoring the disposal of chemical weapons and nuclear waste. The SwRI space program began with developing instruments for spaceflight, including rugged spacecraft computers and a body mass measurement device for Skylab. Today the Institute manages entire space missions, and SwRI instruments and avionics packages have flown on more than 55 missions with no on-orbit failures.

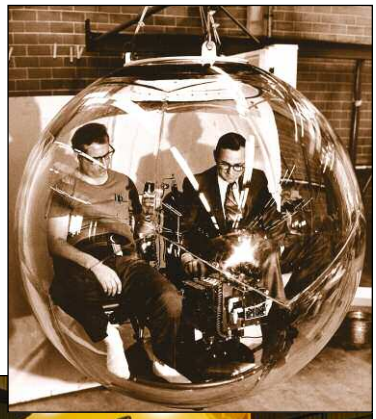
Space Science

The energy crisis of the 1970s fueled research and development in new energy technologies. SwRI's established expertise in hydrocarbon production and transmission technology led to more specialized expertise in offshore engineering and development of a metering research facility to design and evaluate more accurate fluid measurement technologies.

Critical aging U.S. infrastructure, including bridges, pipelines, nuclear reactors and aerospace systems, required more effective inspections, and SwRI began developing new technologies to efficiently locate and monitor corrosion, cracking and other flaws that could ultimately cause failures. The Institute pioneered new systems, such as magnetostrictive sensor technology, and the data processing techniques that make them effective. SwRI is also involved in materials research and reengineering to update and upgrade existing technology.

As the Institute approached the turn of the century, increasing globalization and revolutionary microprocessor progress shaped the research and development program, with advances in automation, training systems and miniaturized electronics. The 21st century is the age of information, and SwRI is on the vanguard with programs in networking, intelligent transportation and medical information systems. Many Institute programs support homeland security, including diverse programs in border protection, unmanned surveillance technology, chemical weapons mitigation and cyber security.

At a time when robots and space exploration were still largely science fiction, Southwest Research Institute began as a small research organization on the outskirts of San Antonio. Since then, the Institute has grown to be an international center of science and engineering excellence with a research volume nearing half a billion dollars and more than 3,000 staff members. Throughout a 60-year history of growth and technical progress, the SwRI mission has remained true to our charter: benefiting government, industry and the public through innovative science and engineering.❖



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Submersible Research