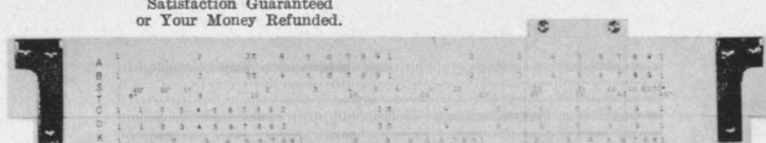


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TECHNOLOGY

Computer Pool Fought

► THE NATIONAL Aeronautics and Space Administration is fighting to keep its high-brow scientific computers out of the hands of the lower-browed General Accounting Office.

GAO officials think the country could save millions of dollars if the Federal Government's many agencies would pool their computers and other electronic data processing equipment.

John D. Young, NASA's administration director, told members of a House Civil Service subcommittee that such a pool might work with unsophisticated "administrative" computers. But he said he is "unalterably opposed" to putting scientific computers under any "super-group in the Executive Office."

Although administrative computers can take in and give out enormous volumes of information, their mathematical processes are simple, mainly limited to totaling, tabulating and plotting.

In engineering and scientific research, however, electronic computers are used for studying extremely complex inter-relationships with intricate mathematical models.

NASA officials doubt that non-scientific agencies would appreciate the value of scientific computers.

The space agency has 118 general purpose digital computer systems, of which only seven are used full time for administrative needs. Forty-seven are at the Marshall Space Flight Center in Huntsville, Ala., and 28 at its Goddard center in Greenbelt, Md.

NASA has just signed a \$36.2 million contract with International Business Machines Corporation to install computers at its Manned Space Flight Center in Houston, Texas, to monitor future Gemini and Apollo space flights.

It is also concerned that GAO's policy of buying more computers and renting fewer might stagnate the space program. Changes come too fast in scientific computers for permanent ownerships, said E. C. Buckley, director of NASA's office of tracking and data acquisition.

"It would have been impossible to be in space at all without up-to-date electronic computers," Mr. Buckley said. "As it is, at any moment we know within 300 yards where an astronaut is. We could be even more accurate if we knew the exact shape of the earth.

"Computers helped astronaut Cooper land within two miles of the Kearsarge—about as close as the captain of the Kearsarge knew where he was himself."

NASA uses computers every day in "simulation projects," trying to see what would

happen if a landing gear were built a certain way or a spacecraft were to use a certain method of linking with another craft.

The entire Apollo moon shot is being simulated on computers.

Mr. Young said the computer today is as much a part of scientists and engineers as the slide rule was 30 years ago.

• Science News Letter, 84:77 Aug. 3, 1963

TECHNOLOGY

Fuel Cell May Replace Internal Combustion

► THE INTERNAL COMBUSTION engine may be on the way out. The car of tomorrow may get its power from a fuel cell.

This device operates on low-cost kerosene or crude oil, eliminating the need for expensive, refined fuels such as gasoline and diesel fuel. A fuel cell converts its energy source directly into electric power. Potentially three times as efficient at converting fuel to energy, the fuel cell could replace present-day auto engines, with a considerable saving in fuel.

Scientists at the University of Florida in Gainesville have envisioned a car driven by four separate electric motors—one at each wheel—all powered by such a cell. Even airplanes and submarines may some day be powered by this new type of power plant.

• Science News Letter, 84:77 Aug. 3, 1963

Do You Know?

Botulism is prevalent among cattle in South Africa and is a scourge of the milk industry.

Low-frequencies—one ten millionth of a volt—acting in the brain can be recorded by an *encephalogram*.

A *camera* capable of producing line patterns as fine as 50,000 lines per inch has been developed.

More than 5,000 U.S. industries are directly involved in placing a man on the *moon*.

By crossing two varieties of *Tilapia*, a small fish resembling the North American sunfish, scientists have produced all-male hybrids that can be quickly grown to edible size.

• Science News Letter, 84:77 Aug. 3, 1963

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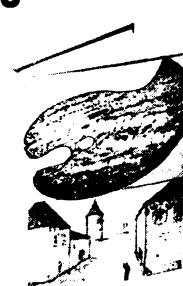
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