

TECHNOLOGY

Spy Game Revolutionized

Counter techniques have kept pace with the development of each new detecting system making success at spying and counterspying more and more difficult—By Charles A. Betts

► **ELECTRONICS** is making the international spy game easy to get into and difficult to succeed at.

One of the most elementary detection devices is radar, which apparently picked up a U.S. reconnaissance plane photographing a French uranium plant. While authorities in Washington, D.C., will not talk, it seems rather evident that our friends and allies, the French, caught us hands down with a fist ingloriously stuck in their cookie jar.

Following the celebrated U-2 destruction over the Soviet Union, it has been rather common knowledge that this high-flying, speedy plane equipped with the latest in photographic equipment has been an invaluable intelligence tool. For example, it heralded the Communist missile buildup in Cuba and presumably has since been filling the military in on what's happening on Castro's island.

Meanwhile more sophisticated electronics systems are patrolling the skies to detect sneak nuclear explosions. The U.S. Air Force has just launched twin watchdog satellites, the third in a series of flights in the nuclear detection program. The first launch took place Oct. 16, 1963, and the second July 17, 1964.

The program is a three-part research and

development effort under the direction of the Advanced Research Projects Agency of the Department of Defense. ARPA is responsible for developing an ability to detect nuclear detonations under ground, in the atmosphere and in space.

At present, underground detonations are detected by seismographs similar to those used to measure the intensity of earthquakes.

Since a satellite program is charged with detecting underground blasts, **SCIENCE SERVICE** asked the Defense Department if it was possible to detect underground blasts from the air. The answer was "no, we wish it were."

It was disclosed, however, that underground blasts could sometimes be determined by changes in vegetation and disturbances of soil structure over a blast zone. Such changes could be detected by aerial photographs.

In another development, the Air Force wants an electronic blanket system to guard its Minuteman intercontinental ballistic missile sites. A \$2.6 million contract has gone to General Telephone and Electronics to design a system that will guard launch facilities by spreading a magnetic blanket of radio signals. Anything entering the area causes a new, different signal. The equip-

ment is expected to detect the new signal, analyze it and activate an alarm if necessary—all in less than a second.

Further new successes in outer space bring new opportunities for surveillance. With the manned space platform approaching realization, the opportunities for detailed scrutiny of any portion of the globe become almost limitless. The published photographs taken by Astronaut Edward White during his space walk, along with continued progress in photographic techniques, show the potential.

Electronics has played its part too in the development of the tools for the spy game as played on an individual basis. Recent Senate hearings disclosed a wide range of devices, small enough to fit in a brief case or a pocket, that make it easy to pick up conversations through walls or in the open a block away.

Like other aspects of war, hot or cold, the spy business is subject to the development of counter techniques to try to nullify any given achievement. As early radar was fouled by strips of metal foil, so may instruments be developed to offset the new devices.

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TECHNOLOGY

Scientist Criticizes European Space Group

► **ANXIOUS POLITICIANS** are drastically interfering with Europe's attempts to learn how to launch satellites and spacecraft on its own, a British scientist said.

The European Launcher Development Organization, ELDO, the seven-nation group working on an all-European launch system, suffers from "constant interference from politicians and government officials of its member states," said A. V. Cleaver, a member of the British Interplanetary Society and chief engineer at the Rolls Royce Company.

The basic problem, Mr. Cleaver said, is lack of conviction in Europe that space launcher development is necessary on that side of the Atlantic.

Europe's present expenditure on space research is about one-twentieth of one percent of its gross national product, said Mr. Cleaver, which means that the Continent could easily afford to spend more, even if it could not compete with the United States and the USSR.

At ELDO meetings in Paris last April, France abandoned its proposal for an advanced booster called ELDO-B, featuring liquid hydrogen upper stages, in favor of continuing the current, less powerful ELDO-A rocket. The original budget appropriation was raised to \$250 million, an increase of 25%, but it is "doubtful" whether even this sum will be adequate to complete the initial program, Mr. Cleaver said. Meanwhile, activity regarding ELDO-B is being limited to a series of meetings and conferences covering at least the next year.

Mr. Cleaver said that there is a "very vocal American lobby" with a "very receptive European audience" making the point that "perhaps it is not cheaper to roll your own."

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Netherlands Consulate General

BATTLE CARRIER—Built for the most hazardous roads through jungles, mountains or shallow streams, the flat-topped 1,000-pound vehicle, developed by Van Doorne's Automobielfabriek of Eindhoven, The Netherlands, for moving ammunition supplies and troops, can be landed from an airplane by parachute.