

# Technology Notes

## COMPUTERS

### Big Brother Now Watches Everybody

More than \$130 billion in Federal income taxes will be processed by electronic computers this year, when, for the first time, the machines will be checking all returns.

More than 100 million returns must be processed, according to the Internal Revenue Service, compared to 1930, when only 6 million returns were filed representing \$3 billion.

## WEAPONRY

### Choppers Get Wire-Guided Missile

The TOW missile, which is guided by signals sent down a wire that trails out behind it back to the launch point, has been successfully fired from a helicopter.

As long as the operator keeps a special optical sight trained on the target, an automatic computer instructs the missile where to go, despite evasive maneuvers by the enemy. Mounted on a Hughes UH-1B helicopter, common in Vietnam, the missile accurately hits targets more than a mile away in tests at the Army's Redstone Arsenal.

## SEWAGE ENGINEERING

### Indian Skyscraper to Reuse Sewage

Because of a serious water shortage in Bombay, a new skyscraper to be built there will have its own sewage purification plant and use the effluent water in the cooling towers of its air conditioning system.

The 24-story building, one of the tallest in India, will serve as the city air terminal and the headquarters of Air-India.

## TRANSPORTATION

### All-Purpose Container Seen by Army

A multipurpose device that can easily be converted into a moving van, hovercraft, barge or flatcar has been proposed by Army transportation experts in Vietnam.

Called MAPCAT (Military All-Purpose Container And Transporter), the unit would be made of aluminum, magnesium or some other lightweight alloy, but would be strong enough to survive a rough landing by parachute. By plugging in a forced-air hose like a reversed vacuum cleaner, MAPCAT would rise slightly on a cushion of air for easy ground handling.

The U.S. Military Assistance Command Vietnam, describes the unit as "expendable, but reusable."

# Space Notes

## SOVIET SPACE

### Russians in Space Again

A flurry of recent Soviet Cosmos launches, including two within 24 hours, have increased speculation that a Russian manned space mission is in the offing, after a hiatus of two years.

According to Moscow sources, the next Soviet manned spacecraft may carry six men, twice as many as an Apollo vehicle, and spend a "prolonged" period in orbit.

## THERMODYNAMICS

### Taking a Satellite's Temperature

Where a spacecraft is located in its orbit affects its outside temperature, which affects the temperature inside. A computer formula to predict exterior temperature as a function of orbit position was reported by Frank J. Cepollina of the Goddard Space Flight Center, Greenbelt, Md.

The formula, which takes into account some 20 different variables, was worked out for a spaceship along the lines of the proposed Advanced Orbiting Solar Observatory (AOSO), but could be adjusted to handle many types of spacecraft and orbits.

The formula can be used to measure temperatures

on particular components such as instrument packages or structural members. In addition, patterns can be predicted for temperature changes due to batteries running down, instruments going on or off and other variables.

## SOLAR ASTRONOMY

### Saving Spacemen From the Sun

Two more Orbiting Solar Observatories are being added to the two U.S. sun-watching satellites already in orbit, the first this month and second 60 to 90 days later.

The first OSO was launched almost exactly five years ago, on March 7, 1962, and sent back to earth data on 75 solar flares before it finally stopped working 17 months later. OSO 2 was even more successful, but the booster carrying the third satellite failed, and it never got into orbit.

OSOs 4 and 5, besides being valuable scientific tools, will be important as early warning devices to protect astronauts from dangerous solar flares.

Also watching out for the safety of spacemen will be the Air Force's OVI-12 Flare Activated Radiological Laboratory, to be launched this spring. It will be measuring space radiation between altitudes of 250 and 350 miles.