

# Technology Notes

## SPACE

### Light Contrasts Hamper Astronauts

The super-bright sunlight of space is an added burden for working astronauts, according to studies by the Lockheed Missiles and Space Co., Sunnyvale, Calif.

Five test subjects needed an average of 20 percent more time to perform simple tasks in simulated space sunlight than in normal sunlight on earth, the company reports. Without the dispersing effect of the atmosphere, sunlight produces a much greater contrast with shadowed areas, which changes the familiar visual cues used for working.

Though Lockheed's light source, a xenon lamp in a searchlight reflector, could not match the intensity of sunlight in space, surrounding the work area with light-absorbing black material produced similar high contrasts. It is apparently the contrasts, and not the bright light alone, which are the source of the problem.

## CORROSION

### Glass Fiber Locomotives

Locomotives with reinforced fiberglass bodies are being built in South Africa, for use where corrosion is a severe problem. Along the coastal railroad on the country's southwest seaboard, for example, conditions range from sandstorms by day to salt-laden sprays by night.

Nine locomotives ranging from 15 to 35 tons are being built by C. H. Funkey and Co. of Alrode, Transvaal, using bodies supplied by Halmatic in Capetown. Two are being tested around a chemical plant in Umbogwintini, Natal, and orders have been received from at least five firms, including Consolidated Diamond Mines.

Constructed as a laminated sandwich, the bodywork comprises two mouldings for the walls and roof, separated by a two-inch layer of polyurethane foam. The entire top can be removed for servicing.

## AVIATION SAFETY

### Atlantic Flights Tracked

The navigational accuracy of jets crossing the heavily-traveled North Atlantic is being investigated by the Federal Aviation Agency, which this month began taking part in a nine-month study that should encompass about 80 percent of all air traffic using those routes.

Data will be collected almost without human help, except for technicians who keep the automatic radar-monitoring equipment in repair. Ground stations will be at Gander, Newfoundland, and Kilkee, Ireland, while three U.S. Coast Guard vessels will scan a 400-mile-wide swath in mid-ocean.

To determine the accuracy of the planes' navigation, radar measurements of their positions will be compared with the logs of the flight crews. Participating in the multinational program are the U.S., England, Canada, France, the Netherlands and Ireland, all members of the International Civil Aviation Organization.

## PLANETARY RESEARCH

### Balloons Over Venus

The use of unmanned balloons floating 20 to 30 miles above the surface of Venus is being evaluated for the National Aeronautics and Space Administration by Martin Marietta Corp., N.Y.

Automatically deployed from rockets, the balloons would be at least 20 feet across and weigh 200 pounds. Heavily instrumented to gather atmospheric data, they could possibly be used for missions lasting more than 100 days.

## AIRCRAFT NOISE

### Largest Anechoic Chamber

Research into cutting the noise of aircraft engines such as those of the Anglo-French Concorde is now moving into a new anechoic chamber, reportedly the largest in the world.

Built by the Bristol-Siddeley division of Rolls Royce in Coventry, England, the echo-free chamber is 150 feet long, 120 feet wide and 45 feet high at its peak, and cost more than half a million dollars.

Most of the research in the chamber will center on compressor design, since the compressor is a prime source of engine noise. A 7,000-horsepower drive unit is available to run the compressors during tests.

Among the engines to be tested are the Rolls Royce RB 207 turbine, being considered for a proposed short-hop European airbus, and the Bristol Siddeley Olympus 593, the engine that will power the Concorde.

## DATA PROCESSING

### Crime Computer Spots Trends

A computer that can reveal patterns in crimes and traffic accidents, and can show on a map where and when preventable or detectable crimes have occurred in a specified length of time, has begun operation in Dorset, England.

Each crime committed in Dorset has a statistics sheet prepared for it, which is then transferred to a punched card. Every month the computer reads through the new entries, updates itself and prints out analyses of crime by type, location and time of day. Comparing these with the instant information on the map can reveal trends immediately.

Three years of development went into the system, but even in its early stages it was being used as a guide in deploying police patrols.

## ELECTRONICS

### Mini-camera for Space TV

A television camera about the size of a home movie camera and weighing about two pounds has been developed for possible use in space exploration.

Radio Corporation of America, which designed the unit, says it is the smallest TV camera ever built at its Astro-Electronics division in Princeton, N.J. In its longest dimension, including lens, the camera measures less than seven inches. Resolution is 600 lines, and the slow-scan unit produces an image every 1.5 seconds.