

# behavioral sciences notes

## SONIC BOOMS

### Prospects discouraging

Prospects that the sonic boom will be psychologically acceptable to people living under the flight pattern of supersonic transports are discouraging.

A National Academy of Sciences subcommittee expressed its pessimism after surveying a decade of research on sonic boom effects.

While the booms are not expected to cause any physiological damage, they can produce startle reactions, and indirect physiological effects.

In any case, the pure annoyance level of sonic booms makes it doubtful that the current SST version can fly over populated areas at supersonic speeds without raising strong public protest.

A number of new design concepts have been generated that might reduce the boom to acceptable levels; none are yet operational. The NAS committee expressed "cautious optimism" that such a design will be found.

It also recommended that special study be made of boom effects on sleep. Interruption of sleep could be detrimental to health as well as annoying.

## SLEEP RESEARCH

### Low noise disruptive

Low noise levels may have deleterious effects on sleep without awakening the sleeper, according to preliminary work from Canada's National Research Council.

Noise as low as 50 decibels, comparable to a quiet radio, will move the sleeper from a deep to shallower level of sleep. Deep, stage-four sleep is considered essential for physiological and mental health.

The NRC findings, at this point, are suggestive rather than conclusive since the number of people tested was small. But if confirmed, they will indicate that the deep sleep stage is far more susceptible to noise disturbance than has been realized.

The Canadian scientists used a new high-speed device that analyzes eight hours of EEG recordings in 10 minutes. Dr. G. J. Thiessen, head of NRC's acoustics section, says the new analyzer, by compressing hours of brain wave recordings and retaining only major alterations in sleep patterns, gives more objectivity to sleep research.

## ALCOHOLISM

### Drug creates aversion

Rats, at least, can now be cured of a preference for alcohol. Purdue University psychologists have turned rodents against alcohol with a drug acting chemically on the brain.

The drug, p-chlorophenylalanine, depletes serotonin—an important neural transmitter. There is some evidence that alcohol does the same.

After taking the drug, the rats may have rejected alcohol to prevent further depletion of serotonin, theorize Drs. Robert D. Myers and Warren L. Veale in the June 28 issue of *SCIENCE*. Brain serotonin levels seemed to return to normal after a few weeks following PCPA administration, but aversion to alcohol persisted for months. The psychologists believe the long-term action may be

due to highly localized serotonin depletion in one or more of the forebrain structures.

Results cannot yet be extrapolated to problems of human alcoholism. The next stage is to test PCPA effects on monkeys.

## NARCOTICS

### Marijuana effects in monkeys

The two active chemicals in marijuana—delta 8-THC and delta 9-THC—have been injected into monkeys with effects including stimulation, depression, apparent hallucinations, and loss of responsiveness on complex tasks.

Only with delta 9 form was excitement followed by depression. At high doses of the injected drug, stimulation would last about three hours and be followed by one or two days, to an occasional week of depression. Nine animals died after being depressed (motionless, crouched position) for 24 to 72 hours.

At lower doses of delta 9, behavior was severely disrupted for four days, report investigators Carl L. Scheckel, Edward Boff, Phillip Dahlen, and Terrence Smart of Hoffmann-La Roche, Inc. in New Jersey. Only after nine days did the animals return to their normal level of performance.

The effects of delta 8 were less lasting and did not include depression.

The authors caution in the June 28 issue of *SCIENCE* that anyone doing clinical research with these drugs should consider the possibility of long-term effects. They make no comment on smoked marijuana which has different characteristics from the pure injected chemical.

## URBAN PLANNING

### New town in Mexico

Mexico plans to build a new town in the Valley of Cuernavaca. The new industrial-residential town will be built to accommodate 100,000 people, based on urban theories which stress the need for limits on population size. The new town concept is intended to put an end to megalopolis.

Some 80 industrial plants will support the residents, all of whom will live within walking distance of work. Each factory is expected to install the latest pollution control equipment.

Plans call for condominiums rather than individual houses. The buildings, no more than five stories high, have been designed according to the ability of a worker to pay. The site itself, surrounded by a farm belt, is about 20 minutes from Cuernavaca by car. This ambitious attempt to create a self-sufficient city represents an investment of some \$80 million.

Latin American countries in the post-war years have shown a sharp trend toward urbanization, and the migration from the rural areas has usually been to the capital city. The result has been a concentration of economic, political and industrial influence in one spot in the country.

The urban centralization has been accompanied by the growth of large slum areas on the outskirts of the city. The new town concept is aimed at decentralizing both the economy and the crowded social conditions.

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