

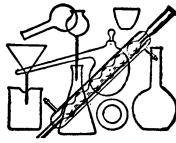
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MARIJUANA REPORT

First year: Few surprises

"Contrary to popular belief," says the Department of Health, Education and Welfare's first annual report to Congress on pot research, "much is known about the use of cannabis by man."

That may be the case, but if so the knowledge gives little satisfaction to the anonymous writers of the report. Stimulated by a Congressional demand for more facts on which to judge the issues of the marijuana boom, the National Institute of Mental Health has sponsored an impressive number of research projects on the weed beginning in 1970 (SN: 1/24/70, p. 102). As the first crop of results comes in, some trends can be noted, but no yes-or-no answers are reported.

Central to the researchers' problems has been the lack, until recent years, of a standard dose of marijuana's psychoactive component. With the synthesis of delta 9-THC, experimenters now have a means of administering a measurable dose of standard strength, but even here some doubt still exists: The component may not be the only one responsible for marijuana's behavioral effect, so a standard extract of marijuana plants, designed to contain as much as possible of the materials present in plants grown for research by NIMH itself, is being prepared.

Using THC, however, NIMH contractors have come up with some tentative results. Toxicity studies with animals show that the amount of the drug necessary to cause death is relatively high and, combined with the fact that human deaths directly attributable to the drug's effects are "extremely rare," lead to the conclusion that cannabis products must be counted among the safer of the drugs in widespread use," at least from the standpoint of lethality.

Similarly, there was little evidence that marijuana contributes to birth defects. Although earlier studies showed some indication of fetal abnormalities in rats after injecting large quantities of cannabis substances, other researchers, says the report, "have been unable to duplicate such findings." Nevertheless, until the question of effects on genetic behavior is cleared up, says the report, "it is obviously unwise" to use the drug during the child-bearing years, and "use during pregnancy is particularly unwise."

As for the subjective effects of the drug, the new research confirmed what had long been suspected: The way pot affects a user depends not only on the highly variable factor of strength but also on the setting in which it is consumed and even the mental state in which the user approaches the drug.

So important are these factors that, says the report, "it is not uncommon" that a joint containing no marijuana at all will cause subjective effects that the subject attributes to an active drug.

In general, the report says, use of marijuana is increasing, although even that conclusion is hedged by the inconsistency and unreliability of previous research. A survey of 10,000 students in 50 colleges across the country showed that 31 percent have used marijuana at some time and 14 percent use it every week or two. But one of the few studies that have several years of data, in the heavy drug-use area of San Mateo County in California, showed that use by 7th and 8th grade students decreased between 1969 and 1970, indicating that the boom in use may have peaked. □

MAGNETOGLOW

A halo for the earth

The earth's magnetosphere is a cloud of tenuous matter, mostly protons, but with some helium ions. It surrounds the earth at altitudes of a few hundred to several thousand kilometers and is bound to the earth's magnetic field. This binding separates the magnetosphere from the solar wind, which, in turn, surrounds it.

Recent investigations by sounding rockets, reported in the Jan. 29 SCIENCE by Drs. Charles Y. Johnson, James M. Young and Julian C. Holmes of the Naval Research Laboratory, indicate that the magnetosphere glows. The glow appears at the very short ultraviolet wavelength of 304 angstroms and is due to the helium ions, they say.

What happens is that 304-angstrom photons coming from the sun are resonantly scattered by the helium ions. This particular wavelength is one that the helium ions would emit if they had enough energy, and when this wavelength is present in light from the sun, they reflect it preferentially.

Since the matter of the magnetosphere is very thin, the chances are overwhelming that any given photon would suffer only one reflection of this kind. Thus the brightness recorded by a detector on a rocket below the magnetosphere would be directly proportional to the number of helium ions in the line of sight.

Data from rockets flying at altitudes between 100 and 200 kilometers can be used to make two-dimensional maps of the density of the magnetosphere. By sending the rockets into and above the magnetosphere, a three-dimensional picture can be drawn, say the three Navy scientists. This magnetoglow, they believe, will "provide a valuable means of studying the structural dynamics of the magnetosphere." □

