

resulted in increased risk in the recent study is "at least twice that presently prescribed by many thoughtful physicians."

Meier and Landau propose that only a controlled, prospective clinical trial — comparing for 10 or 15 years women who choose to use postmenopausal estrogen therapy with similarly affected women who decline it — would satisfactorily determine whether estrogens increase breast cancer risk.

"Although the expected latency ... makes for a long wait to get clear answers, it is unlikely that the problem will disappear in the absence of convincing studies," they insist. □

Drug slowdown seen among high schoolers

Marijuana blossomed in the 1970s, with increasing numbers of the younger generation picking pot as their recreational drug of choice. But now the illicit weed may be losing its allure, according to researchers at the University of Michigan's Institute for Social Research. Lloyd Johnston, Jerald Bachman and Patric O'Malley report that the majority of young persons in the United States are becoming more conservative about most kinds of drug use.

Every year since 1975 the ISR researchers have surveyed 17,000 high school seniors nationwide. Between 1975 and 1978 they found increasing numbers of seniors using marijuana but, they say, "that trend halted after 1977 ... and attitudes toward regular marijuana use have actually hardened since then." Almost 70 percent in the recent survey said they disapproved of regular marijuana use, and 34 percent disapproved of trying the drug even once or twice. More than 90 percent disapproved of regular use of cocaine, heroin, LSD, amphetamines or barbiturates.

The researchers credit media coverage of potential marijuana hazards with bringing about more conservative attitudes and say, "these shifts, though rather modest to date, could prove important to the health of the American population 30 or 40 years hence, particularly if the downward trend continues." □

Anturane use delayed

The Food and Drug Administration last week refused to allow the Ciba-Geigy Corp. to label or advertise Anturane, a prescription drug for gout, for the prevention of death in the months after a heart attack. Recent studies claimed the drug reduced such deaths by 74 percent (SN: 2/9/80, p. 86), but the FDA found that many of the deaths were "misclassified or vaguely defined" and the study did not offer "the quality of ... evidence [required] to approve the drug for this use." □

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Saturn's rings: A scene unseen



Picture of Saturn's rings as they might appear from "on top" (above) was made using radial ring-brightness measurements from Pioneer 11 photos (left). Newly found "F ring" is outermost thin arc. Disk of Saturn itself is separately added Pioneer photo of planet's cloud tops.

tographed by a spacecraft one million kilometers above Saturn's north pole.

When the Pioneer 11 spacecraft flew past Saturn last September, it provided a view of the planet's spectacular rings as earthlings have essentially never seen them. The vehicle's trajectory enabled it to look at the "surface" of the rings that is tilted away from the sun, rather than only at the sun-facing side generally visible from earth. The results were strange indeed: Some areas that appear dark when viewed from the sunlit side because they contain relatively few particles looked bright in the spacecraft's images, because of light-scattering by those same few particles. Regions that appear bright on their sun-facing sides, on the other hand, looked more or less dark, depending upon the amount of sunlight that was blocked by their more densely arrayed particles.

Now information from two of those images has been used to show the rings as they might appear from yet another point of view—one that not even Pioneer 11 ever had, nor will either of the Voyager spacecraft now en route to their own close encounters with Saturn this November and in August of 1981. John Fountain of the University of Arizona, together with some of his colleagues, has used a computer to expand some of the Pioneer data into an image of the rings as they might look from directly overhead, as if they had been pho-

This never-seen view of the rings is not a photograph, nor is it even a photo whose individual elements, or "pixels," have been reorganized by the computer to show the scene from a different angle. (Such a technique is possible in some cases, however. The Viking orbiter photos of Mars, for example, can be computer-manipulated into spherical projections centered at any point on the planet, as well as into mercator, stereographic and other projections.) Instead, the researchers used the Pioneer 11 photos merely as a guide to the rings' pattern of brightness and darkness with increasing distance from Saturn; in essence, they measured the changing brightness along a single radial line through the rings. The computer then swung the line around as though it were pivoted at the center of Saturn, producing the image shown above. The brightness pattern, like that in the photos, is that of the "surface" facing away from the sun, as if the sun's light were coming in at 2° below the ring plane and being reflected up at a 90° angle to the spacecraft. The actual appearance from this angle might be somewhat different, since the data were taken from photos in which the light was reaching Pioneer 11 at an angle of only 6° to the ring plane, but the contrast with sunlit-side photos ought to be similar. □

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