Marijuana — Curse of the Marginally Fertile?

The final word is far from being uttered, but the debate over whether marijuana is a cure or a curse still rages. Reports from recent studies offer both good and bad news — depending, of course, on your personal affections for the weed.

No matter their own opinion, though, many scientists are eager to get their hands on some pot. And just to make it a bit easier for them to score, the federal food and drug folks have classified THC, the active ingredient in marijuana, as a Class C drug, making it cool for clinical use. In fact, the government has long had its own pot fields flourishing at the University of Mississippi.

One of the greatest fears in connection with pot smoking is that THC and its related compounds do not dissolve in water, and therefore remain stored in various parts of the body. This led to indictments in the early Seventies that smoking pot lowers men's levels of testosterone, the male sex hormone. However, follow-up studies have dispelled most of these fears — yet it has been determined that male adolescent smokers may inhibit their normal advances into puberty.

In a parallel study at Columbia University, 16 healthy men smoked between five and fifteen joints a day for four weeks. At the end of the test period their sperm counts were low and some sperm cells were abnormal in shape, but this effect corrected itself after a few weeks. What this ultimately means is that pot smoking may keep marginally fertile men from becoming fathers.

Research on how marijuana affects women bears some bad tidings. Tests on rhesus monkeys, which have menstrual cycles almost identical to humans, have showed marked disruption. Nonetheless, there is still heated argument over whether animal studies can be directly related to humans, since humans and animals react differently to marijuana.

The greatest fear about pot, most doctors think, is its psychological effects. Most agree that smoking dulls the senses, short-term memory and reaction times, making heavy use of the drug particularly detrimental to students and drivers. But in general, most experts concur that pot does not permanently impair overall intelligence.

And now the good news. Marijuana has been found to be one of the most effective anti-nausea drugs around; more than 12,000 cancer patients regularly use it to relieve nausea and vomiting that accompany chemotherapy. And those who suffer from glaucoma, the leading cause of blindness in the U.S., use pot to ease intraocular pressure. Controlled doses of THC have also been employed in treating people with multiple sclerosis. It turns out that the substance reduces spastic attacks. A test at Pennsylvania State University shows that pot smoking lowered spasticity in six of nine patients. This finding may be especially important in the treatment of stroke, cerebral palsy, paraplegia and spinal cord injuries.

Another pot derivative, cannabidiol, or CBD, is intriguing many scientists who are experimenting with epileptics. A team at the University of Utah found that in tests with rats, artificially induced epileptic seizures were reduced in intensity and frequency in every case. Human studies at the Paulist School of Medicine in Brazil came up with similarly promising results.

habits, and similar hormonal systems in humans are now being related to such areas as mood and fertility.

Melatonin is actually produced at nighttime, after the sun's light has taken a somewhat roundabout journey. Light enters through the eye to the optic nerve, part of which goes to the brain's vision center and the other part to the hypothalmus (you remember that one too, don't you?), often referred to as the body's internal clock. The light-generated nerve messages finally work their way to the spinal cord and then to the pineal gland, located in the brain, where the hormone is manufactured.

Dr. Alfred Lewy, a research psychiatrist, has conducted studies that have determined, for instance, that some people may have adapted to low-level artificial light while remaining sensitive to more intense natural light — sunshine. This may explain why some mental illnesses seem to occur at certain times of the year. It is often reported, for example, that temperate and polar regions cite seasonal patterns in depression, mania and suicide.

Dr. Lewy experimented with one patient who suffered extreme depression every fall. The man was exposed to intense natural-type light for six hours per day — three at dawn, three at dusk — and, according to the study, his depression lifted in four days. In essence, they made spring — and all its joys — come early for the patient.

Related studies have led to criticism of artificial lighting, the type used in schools, offices and other public places. Recommendations have been made that people get outside as often as they can and to keep doors and windows open whenever possible. You might just keep this in mind as an excuse the next time you want to cut class on a sunny day.

Designer Genes for the Farm

The biological revolution spawned by recombinant DNA research is generally associated with medical discoveries. Well, look again. Genetic engineering is moving down to the farm. In an effort to cure persistent world-wide food shortages and related energy problems, agricultural genetics is attracting new research talent as well as mega-dollars.

By fiddling with plants' genes, scientists hope to someday achieve such botanical feats as inducing crops to fix their own nitrogen, thereby requiring less fertilizer; to resist deadly herbicides; to grow in salty soil; and to secrete toxins that would kill invading pests. The fruits of their labors may be years down a long country road, but big business is willing to pay now for the future harvest. Dozens of small firms have blossomed in the plant genetics field lately, coupled with major commitments from such giants as DuPont, Upjohn, Monsanto and Cetus Corp., the oldest genetic company in the country.

Crossbreeders have been creating genetic hybrids for years, but since plants have nearly 10,000 genes, finding the specific ones farmers want is a time-consuming, trial-and-error process. For instance, it's taken more than 20 years to breed today's strains of commercial corn and rice. Gene splicing offers a shortcut, a way to speed up nature.

A good example is the "sunbean," developed by biologists at the University of Wisconsin, who transplanted a gene from a French bean into a sunflower. Similar studies are being conducted at the University of Georgia, where agrigeneticists are working on the super soybean that will resist herbicides.

Other researchers are concentrating on developing plants that fertilize themselves. Winston Brill, formerly with the University of Wisconsin and now working with Cetus' new lab in Madison, is experimenting with legumes such as alfalfa and clover. Brill and his colleagues have created nitrogen-fixing bacteria that cling to the roots of the plants. Cetus scientists are also injecting plants with genes that make chemicals toxic to a common insect.

DAN EICHOLTZ

The risks are high, the competition is firming up and the return on investment is years away, but agribusiness anticipates a fertile future with the aid of genetics. As Winston Brill puts it, "Things will break left and right."

Holding Back Herpes

Sufferers of herpes simplex virus infections, one of the most common types of VD in the United States, should find some relief from a report out of Johns Hopkins University in Baltimore. Researchers there have developed a new drug, called acyclovir, which may prove to be the first effective treatment for herpes infections of the mouth and genitals.

The drug was initially tested on patients who were to receive bone marrow transplants for leukemia or a severe type of anemia. Herpes simplex kills one in 20 of such transplant patients, whose natural immunity systems are lowered in the surgical procedure.

One of many drugs being tested to treat viral infections, acyclovir does not actually kill the virus or cure the disease. Rather it retards the production of the virus, controlling it throughout the drug-treatment period. The Johns Hopkins study, led by Rein Saral, was conducted over an 18-day period during which the drug was administered. The transplant patients did develop the herpes virus, but severity was kept at a minimum and eventually the herpes was held in check.

Bob Woods is the editor of Future Life *magazine.*

program

THE COVER

"Pillar of Salt," by fantasy artist Paul Stinson, reminded us more of computers than pillars, salt or otherwise. The illustration for Harlan Ellison's Night of Black Glass is also the work of Mr. Stinson.

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