

## Europe Grants First Patent on Plants

Brussels

The biotechnology company Agrigenetics of Boulder, Colorado, has had an application approved by the European Patent Office (EPO) in Munich for what is thought to be the first European patent on plants.

According to officials from the EPO, the patent in question involves a technique for increasing the protein content of forage crops such as alfalfa. The significance of the patent is that it includes not only legal protection for the technique itself, but also for plants produced with the aid of the technique.

The patent office's decision appears to open the way for the general acceptance in Europe of patents on new forms of both plants and animals created through the use of genetic engineering. Until now, there has been general uncertainty over whether such patents are allowable under the European Patent Convention of 1973.

Although the convention, which sets the general framework for patent law in most European countries, allows the patenting of microorganisms, it specifically excludes from patent protection "plant and animal varieties," as well as "essentially biological processes for the production of plants and animals."

Some claim that the convention can be read as excluding all claims for patents on plants and animals. Others, however, argue that, if a limited interpretation of the category "animal and plant variety" is adopted, then the convention still allows patents to be granted on new animals and plants, or on their constituent parts, which are not considered to make up a variety.

This approach, for example, has been adopted in the draft of a directive seeking to clarify European patent law, which is currently being completed by the Commission of the European Economic Community (EEC) in Brussels. A final version of the directive is due to be presented to ministers representing the 12 member states of the EEC within the next few weeks.

In its current form, the draft is said to argue that genetic manipulation should be characterized as a (patentable) "microbiological process," rather than as a (nonpatentable) "essentially biological process," and that as such it should be legitimately considered a patentable invention.

The Commission intends to go on to claim that, since a basic principle of European patent law is that protection should cover

both a process and the product that results from its application, a new plant or animal produced with the use of these genetic manipulation techniques should also be patentable.

Such patents can therefore be granted, it suggests, regardless of the ban on patents on new animal and plant varieties imposed by the 1973 convention. In other words, the Commission intends to argue that the convention does not exclude the patenting of plants and animals as such.

The European Patent Office appears to have adopted this interpretation of the current legal limitations in approving the Agrigenetics patent (which will be valid in all European countries that have signed the convention).

It has yet to make a decision on whether the same principle should be applied to an application it has received from Harvard University for a patent on the so-called "myc-mouse" developed by Philip Leder and Timothy Steward, which carries the *myc* oncogene in its genome, and was recently awarded the first U.S. patent on a living animal. Applications for patents on living organisms have also been filed by several European companies. ■ D.D.

## U.K. Group to Set Up Soviet Seismic Station

A privately funded group of British scientists has been given permission by the Soviet government to carry out a series of experiments in the Soviet Union designed to measure the ability of seismic equipment to detect low-level nuclear tests.

The first research equipment will be set up later this year at Garm in Kazakhstan, 1000 kilometers south of the nuclear test site of Semipalatinsk. It will be close to detection facilities that have already been installed by a U.S. group organized through the Washington-based Natural Resources Defense Council.

"It is the first step toward internationalizing the process [of testing verification techniques]" says geophysicist David Davies, chairman of the British Seismic Verification Research Project, and a former editor of the journal *Nature*.

"Now that there are teams of two nationalities, it makes the whole project that much broader. In the future, we would like to have more countries coming in," says Davies, adding that interest has already been shown by scientists in Australia, Sweden, and West Germany.

The U.K. project, which was given its formal approval by the Soviet government at a meeting in Moscow in mid-May, is

being financed by grants from several British foundations, including the Rowntree and Cadbury Trusts. The research projects will be conducted by graduate students from a number of British universities, and the project is being led by a group from the University of Leicester.

"We see this exercise both as a genuine research project and as a confidence-building measure," says Davies. "At present, we feel confident that we can detect tests down to 1 kiloton in size, and our aim is to see how much further we can lower this threshold." ■ D.D.

## Stock Market Decline Cuts Endowments 13.1%

Last year's Black Monday plunge in the stock market cost the 50 American universities with the biggest endowments an average 13.1% in their value. A special study for the National Association of College and University Business Officers indicated, however, that the universities' investment portfolios fared better than common stocks in general, which declined an average 22.6% overall. The special study covered the last quarter of 1987 and focused on 50 institutions with endowments worth more than \$100 million.

NACUBO's regular annual endowment study of 296 colleges and universities for the year ending 30 July 1987 shows that the year preceding the crash was a favorable one for endowments. Earnings from stocks averaged nearly 25% and the market value of funds in the study rose to \$47.9 billion from \$40.5 billion in mid-1986.

Four institutions were listed as having endowments with market values over \$2 billion: Harvard, \$4 billion; University of Texas System, \$2.8 billion; Princeton, \$2.3 billion; Yale, \$2 billion. ■ J.W.

## Hungarian Researchers Form Unofficial Union

The first independent labor union to be openly established in Eastern Europe since the Polish Solidarity movement was created in 1980 has been set up by more than 1000 Hungarian scientists, laboratory workers, and university lecturers.

Named the Democratic Trade Union of Scientific Employees, the new union has been established partly to protest the government's decision last December to impose a 25% cut in its spending on research. This decision followed a period in which the government had been promising a significant and sustained increase in support for

basic science (*Science*, 15 May 1987, p. 770).

A 59-member steering committee was elected at an inaugural meeting to determine the union's initial strategy. The meeting, which is said to have been attended by over 400 individuals, was apparently turned away from a university hall which had been previously booked in Budapest.

A member of the steering committee said after the meeting that the members of the union include not only university professors and research workers from both the natural and social sciences but also laboratory technicians and unemployed research workers.

Many of these, he said, felt that their interests were not being sufficiently protected by the official Public Employees Union.

According to a broadcast on the Hungarian state radio, the new union intends to "campaign for a science policy that consistently upholds their common interests and to eliminate restrictions that hinder the development of both science and education."

The formation of the new union took place shortly before last week's special meeting of the Hungarian Communist Party. In his speech to the meeting, Hungarian leader Janos Kadar denounced the formation of

political organizations outside the party's control, including the scientific union. Two days later, however, Kadar was ousted as party leader and replaced by Karoly Grosz, the former prime minister.

Many members of Hungary's academic community are known to be sympathetic to demands for radical reform that have been put forward by Imre Pozsgay, a member of the Party's central committee who has been arguing forcefully that major structural changes are needed in Hungary's economic and political system if it is to escape its current economic crisis. ■ **D.D.**

## Nicotine Likened to Cocaine, Heroin

In a strongly worded report, Surgeon General C. Everett Koop last week warned the nation's 51 million smokers that the nicotine in their cigarettes and other tobacco products is as addictive as cocaine or heroin.

"The pharmacologic and behavioral processes that determine tobacco addiction are similar to those that determine addiction to drugs such as heroin and cocaine," the report concludes. Koop called for new federal action, including a stronger warning label on tobacco products, a ban on vending machine sales, and licensing of tobacco retailers.

"Our nation has mobilized enormous resources to wage a war on drugs—illicit drugs," Koop said at a news conference. "We should also give priority to the one addiction—tobacco addiction—that is killing more than 300,000 Americans each year."

The 618-page report breaks no new ground, but summarizes more than 2000 published studies on nicotine and its effects. It confirms that nicotine acts on specific binding sites or receptors throughout the nervous system. Nicotine passes quickly into the brain, where it interacts with nicotinic receptors in the visual, limbic, and motor systems to increase brain metabolism. Research also shows the drug causes skeletal muscle relaxation, increases heart rate and blood pressure, and regulates the levels of a wide range of chemicals in the blood and brain, including serotonin, adrenaline, pituitary hormones, catecholamines, and vasopressin. Cocaine and heroin act in similar fashion.

Nicotine, the report says, meets the standard criteria for an addicting drug. Like those addicted to illegal drugs, smokers take nicotine compulsively for its mood-altering effects, even when they pay dire physical or social consequences. Smokers do perform better on some cognitive tasks after smoking, the report says, and on average weigh 7 pounds less than nonsmokers.

Smokers develop a tolerance to nicotine and develop withdrawal symptoms when they try to stop, Koop said. When they do kick the habit, they relapse at the same rate as alcohol or heroin abusers.

Since the 1964 Surgeon General's report, the government has considered nicotine a habituating, but not an addictive drug. Koop noted that shortly after the 1964 report, the World Health Organization dropped the distinction. "It is now clear that even by the earlier distinction in nomenclature, cigarettes and other forms of tobacco are addicting and that actions of nicotine provide the pharmacologic basis of tobacco addiction," Koop said.

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The Tobacco Institute, a lobbying association for the industry, issued a statement saying the report "trivializes the serious drug problem faced by society." The claims that nicotine is addictive "defy common sense," the statement said. In response, Koop pointed to a large bar chart showing that tobacco use is linked to more deaths each year than alcohol and illicit drug use combined. "I don't think there's any way you can consider the problem we have as trivial," he said.

The Surgeon General emphasized that smokers should not be discouraged by the report. He noted that 40 million Americans have already quit smoking, and the report outlines a number of pharmacologic and behavioral treatments for nicotine addiction. He called on health insurers to pay for treatment programs that help smokers quit, just as they pay for alcohol or drug detoxification.

Like the 1964 report linking cancer and smoking, the new report may well have more political than scientific impact. It comes at a time when antismoking activists have scored major victories. Localities increasingly are banning public smoking, and one major airline has outlawed smoking on all continental flights, upping the tension between smokers and nonsmokers. Koop said he hoped the report would not further alienate the two groups. "I would think it would make nonsmokers more sympathetic to smokers who can't quit," he said.

Koop also called for more research into the brain mechanisms of nicotine addiction, into the phenomenon of "chippers" (people who use tobacco or other drugs occasionally without becoming addicted), and into new ways to help people stop smoking without gaining weight.

Capitol Hill has responded to the report with a flurry of activity. At a news conference, Representative Henry A. Waxman (D-CA) called the tobacco industry "a multibillion dollar drug empire" and promised that his subcommittee on health and the environment would consider bills to give the Food and Drug Administration jurisdiction over tobacco. Senator Bill Bradley (D-NJ) introduced a bill to add a new label to tobacco products and advertising: "Warning: smoking is addictive. Once you start, you may not be able to stop." Other members of Congress called for renewed support of bills that would address many of Koop's concerns, especially ways to counteract the tobacco industry's advertising appeals to children and teenagers. ■ **GREGORY BYRNE**