France Boosts Biotechnology

London. The French government has announced an ambitious 3-year plan aimed at increasing the nation's share of international biotechnology markets from 7.5 to 10 percent by 1990. The plan, which was unveiled in Paris last week, includes an increase of more than 25 percent in government support for research related to the future needs of the biotechnology companies next year, with even greater increases in the years to follow; at present, such support is about $160 million.

The plan has been drawn up by a special commission of 23 government officials, scientists, and industry representatives established last year by M. Jean-Pierre Chevènement, then minister for science and research, and headed by Pierre Douzou, president of the scientific council of the National Institute of Health and Medical Research. Late last month, Chevènement was promoted to become head of the ministry of industry, at the same time retaining his original responsibilities for research. The commission's recommendation for a substantial increase in government support for biotechnology has been adopted as the first of seven programs through which the new "superministry" intends to stimulate rapid science-based economic growth.

The report explicitly compares the current state of French biotechnology—interpreted to cover a broad range of industrial applications of biological processes—with the situation in both the United States and Japan. It points to many gaps in France's current research and development program which, it says, need to be filled if the nation is to increase its share of the world market in biotechnology.

Three categories of research are identified as essential to this effort: fundamental research on the "acteurs" of biotechnology, such as microorganisms, cells, and enzymes; the study of biological reactions and their applications; and research in related areas such as pharmaceuticals and agriculture. The members of the commission say that the first and third categories are well in hand, but that the second category "which corresponds to biotechnology in the strict sense has hardly been touched upon." They have therefore provided a list of research projects needed to remedy the current lack of effort.

Chevènement is proposing that increased government funding be matched by a higher level of support for biotechnology research from industry, suggesting that this be encouraged by measures such as tax credits and preferential loans to companies that raise their R & D spending. The report also recommends efforts to improve the transfer of ideas from the laboratory, and to speed up the training of biotechnologists. These are now being studied by the department of education.

Future government efforts will be guided by a national committee of representatives of both "economic and social" constituencies which will meet twice a year to suggest policy directions and evaluate the actions that have been taken. This committee will be chaired by Chevènement; Douzou will act as his vice-chairman.

—David Dickson

Ethics Panel Looks at Human Gene Splicing

Two years ago representatives of the country's leading religions asked the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research to address the prospect that "we are rapidly moving into a new era of fundamental danger" triggered by gene-splicing technology. The commission's response is a report, the draft of which was aired at a hearing held in Washington last month.

It basically addresses two potential "direct human applications." One is gene therapy, by which is meant replacement of a defective gene—such as the gene to produce insulin—in somatic cells. The other is gene surgery, which means intervention that would affect human germ cells and hence the genetic makeup not only of the individual but of all his descendants. The report raises—but does not answer—a variety of awesome questions relating, for example, to the nature of humanness, the future responsibilities of parents if it becomes technically possible to eliminate genetic defects in utero, and the propriety of creating hybrid part-human forms of life.

Crossing interspecies barriers—by inserting a human hemoglobin gene into an embryonic mouse cell, for example—is not regarded in itself as problematic. The difficult question, rather, is whether such transactions could involve manipulation of characteristics that are regarded as uniquely human. This, suggests the report, is what people are really afraid of when they express concerns that gene splicing is "playing God." But the commission declined to predict whether this would ever be possible. The answer, it says, cannot be determined until mankind has a much clearer idea of "what is natural to man" and what human characteristics are the product of his environment.

Meanwhile, in answer to the churches, the commission wrote that it "does not see in the rapid development of gene splicing . . . 'fundamental danger' to world safety or to human values."

The panel drew some criticism from author and *New York Times* editorialist Nicholas Wade, who was invited to testify at the hearing. Wade thought commission members were ducking their real responsibilities. He said they ought to come right out and admit that one day scientists will come to a full understanding of the workings of life and will therefore be in a position to alter the nature of man—however that may be defined. He suggested that it is therefore the commission's role to look into the far distant future and discuss setting some firm guidelines. A possible one, he said, would be drawing the line at intervening in human germ cells and thus with the course of human evolution.

But Wade's immediate concern was what he saw as a trend toward "revisionism" of recent history. He thought he saw in the report "a reflection of the vested interest of scientists" who felt the whole gene-splicing debate of recent years had been a big annoyance and who wanted to soft-pedal the long-term potential of the technology in hope of avoiding further public debate. "Scientists will speak readily of the miracles awaiting us in the industrial sphere," he said, "but before a panel of ethicists they put on quite a different hat and dismiss as

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science fiction" the public's amorphous fears about what will happen when we go about "playing God."

The only other witness at the hearing was French Anderson of the National Heart, Lung, and Blood Institute. Anderson at the beginning of the hearing professed himself quite satisfied with the report, but was by the end of the morning admitting to some uneasiness over the world that gene splicing is opening up. It was the "reductionism" that bothered him—the knowledge that at the most elementary level the stuff of human life is interchangeable with that of all other life made him wonder "if there is anything unique about humanness . . . if not, there is nothing wrong with gene manipulation." The prospect he found "frightening."—***Constance Holden***

Humanities Association Goes Under

The American Association for the Advancement of the Humanities, which aspired to be a sort of AAAS for the humanities, has announced that it is going out of business.

Founded in 1977 and run almost single handedly by historian James Banner, the organization's purpose was to serve as a coherent voice for the humanities: to strengthen the disciplines and promote communication among them; to educate the public, and to explore new sources of support. The main vehicle for these concerns was a quarterly publication, the *Humanities Report*.

But the organization never really got off the ground. Membership peaked at 3000 and then declined to 2150. The state of the economy seems to have had a lot to do with the association's failure to flourish. However, said Banner, "it's very difficult for people in the humanities to understand that their professional world faces general challenges—collective problems that cannot be addressed by the fragmented approach characteristic of humanities for generations."

Banner explained that humanists, like scientists, have become hyperspecialized and fail to see value in an organization whose primary function is not scholarly. As for institutions, he said universities and other groups are so concerned with administrative and financial matters that the content of education is not receiving adequate attention. "We have reached a very dangerous pass in our culture where education is separated from learning," asserted Banner.

—***Constance Holden***

House Nixes Binary Program

The House on 22 July voted to delete the $54 million that the Administration wants for starting production of binary nerve gas shells. The vote —251 to 159—was particularly significant in view of the fact that it was the House that, on its own initiative, opened the matter in June 1980 when it voted to appropriate money for construction of a nerve gas production facility in Pine Bluff, Arkansas.

The turnaround is in large part due to extensive educational efforts spearheaded by Representative Clement Zablocki (D–Wis.), chairman of the House Foreign Affairs Committee, and by Representative Ed Bethune (R–Ark.), which apparently more than offset strenuous lobbying from the Department of Defense and the White House. Zablocki, known as a firm supporter of defense, stated during the debate that the proposed program "does not contribute to United States national security but rather undermines it."

The bill now goes to conference with the Senate, which approved the nerve gas appropriation by a narrow margin in May.—***Constance Holden***

Air Force General to Head JPL

Former Air Force Chief of Staff General Lew Allen, Jr., will become a vice president of the California Institute of Technology and director of the institute's Jet Propulsion Laboratory (JPL), Caltech officials announced last week.

Jet Propulsion Laboratory is administered by Caltech for the National Aeronautics and Space Administration (NASA). Allen, 56, replaces Bruce Murray, who recently resigned the JPL directorship after 6 years in the position (*Science*, 16 April, p. 276).

Although some workers at JPL were initially taken aback by Allen's military background, he has gotten high marks there for his credentials as a scientist and administrator. After graduating from West Point in 1946 and obtaining his Ph.D. in physics from the University of Illinois in 1954, he spent 3 years at Los Alamos researching the physics of high-altitude nuclear explosions. That was followed by 4 years as science adviser to the Physics Division of the Air Force Special Weapons Laboratory.

His career since then has included

Lew Allen, Jr.

stints as head of the Air Force's Directorate of Special Projects in Los Angeles, with additional duty as deputy commander for satellite programs, Space and Missile Systems Organization; director of the National Security Agency; commander of the Air Force Systems Command; and, from 1979 until his retirement on 30 June, Chief of Staff of the Air Force.

"Allen's military background is clearly a sensitive issue," says Caltech President Marvin L. Goldberger—especially so since Caltech last year authorized JPL to take on unclassified military contracts to make up for the decline in NASA's planetary program. Ultimately, JPL will be doing about 30 percent of its work for the Pentagon.

But Goldberger insists that Allen's appointment was not made on that basis: "He even told the search committee, 'If you want me because you expect big, fat defense contracts, I'm not interested.' "

"I believe he is dedicated to the civilian space program," adds Goldberger, who has known Allen since they were both graduate students at Illinois. "His interests in JPL correspond exactly to my own."

—***M. Mitchell Waldrop***