

MEDICAL GENOCIDE

PART 23

Our researchers seem content to explain AIDS as a freak act of nature. But it might well be the first of several epidemics that will become the scourge of the 1990s.

DEADLY VACCINES

BY GARY NULL

Biotechnology, the application of engineering and technological principles to biological research, exponentially increases our ability to manipulate our own lives. The two areas receiving the most attention from biotech wizards are medicine and agriculture.

We have been told that genetic engineering is the bridge to a new kind of American agriculture—we can decrease the need for pesticides, reduce our food bills, and feed the world. But these miracles will probably never happen. Many of the antibiotics and drugs used on our livestock and the pesticides used on our produce that were to deliver these miracles have proven to be dangerous. Scientists are also beginning to

suspect the safety of our massive vaccination programs.

In the last few years, the number of "mysterious," "new" immunosuppressive conditions has been growing. AIDS and Epstein-Barr virus are believed to be caused by viruses remarkably similar to those found in primate species, specifically those whose cells are commonly used for the manufacture of our vaccines.

Are the origins of AIDS and other immunodeficient conditions examples of genetic engineering gone terribly wrong? In the rush to cash in on biotechnology, is industry unleashing a host of genetic strains that may not be safe? How can one assure the safety of something

that has no parallel in history? Is AIDS merely the tip of the iceberg—the first of several epidemics that will become the scourge of the 1990s?

We have been told that vaccines for humans and animals are safe. We now know that this is not always true. There is substantial proof that contaminated vaccines are used routinely. In 1987 14,000 cattle in Australia were infected with bovine leukemia virus when a contaminated vaccine was used to immunize them for tick fever. In 1986 baby pigs in France were infected with a virus similar to one that causes border disease in sheep. It was later determined that the pigs had been infected by a live vaccine for pseudorabies that had been grown on lamb-kidney cells.

Most of the live vaccines that we use today are grown on living cells that have been taken from different species of animals. According to virologist Dr. Eva Snead, "These animals all carry different leukemia, cancer, and immunosuppressive viruses. If these viruses are present in cell cultures used to make vaccines, then they are also present in the vaccines." Dr. Snead believes that AIDS and other immunosuppressive conditions such as chronic fatigue syndrome and Epstein-Barr virus were not introduced by some freak act of nature, but through our vaccination programs.

Dr. Charles Kaplan, who did research on such viruses while a student at Harvard, is concerned about the connection between immunosuppressive diseases and adventitious viruses, particularly a virus found in the cells of the green monkey called simian virus 40 (SV40). SV40 has the insidious quality of entering the DNA of the host and facilitating the entry for other viruses as well. "The green-monkey kidney is chosen for vaccine production precisely because its cells are not particularly healthy," Kaplan says. "A healthy cell will not support the growth of a virus from which vaccines are made. The green-monkey kidney happens to be one such cell, and as such, it also harbors other viruses, including probably the HIV virus."

During the manufacture of vaccines, something happens to a harbored virus, although scientists are not quite sure what, that makes it more deadly to certain species than it would be in its natural state. The manufacturing process may be encouraging the virus to cross the species barrier.

British physician Dr. John Seale believes that molecular analyses of the HIV virus show it to be of simian origins. He correlates various vaccine programs conducted around the world to the subsequent appearance of AIDS.

"If you look at the outbreak of AIDS in Africa," says Los Angeles gastroenterologist Dr. Robert Strecker, "you notice that it corresponds to the smallpox-eradication campaign conducted

by the World Health Organization. The appearance of AIDS in this country corresponds to the hepatitis-B vaccine study conducted in San Francisco, Los Angeles, Chicago, New York, and St. Louis. The participants in the study were young white homosexuals between the ages of 20 and 40 who were promiscuous but otherwise healthy."

The manufacture of the vaccines that may be causing or facilitating the spread of AIDS represent only a minor segment of the budding field of biotechnology. This emerging new science gives us the ability to create life according to our dreams and desires. Corporate America is looking at biotechnology as a means to control pollution without reducing it at the source. Medical researchers are looking for biotech treatments for cancer, obesity, and diabetes. Food producers see a boon in genetically engineered plants that will naturally resist pests and dis-



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ease, making farming more "natural."

Since scientists developed techniques for manipulating DNA, some major corporate restructuring has been quietly taking place. "Once upon a time in the United States, there were clearly drawn lines of distinction between chemical, pharmaceutical, energy, and food companies," writes Jack Doyle, author of *Altered Harvest* (Viking, 1985). "No more. This 'old' demarcation of industrial activity is being obliterated by a potent new alchemy of mergers and biotechnology."

According to Doyle, the wave of mergers is not just a question of one company buying up another. What we are seeing is the concentration of the "life necessities" industries into the hands of fewer and fewer large corporations. For instance, in 1987 the Swiss pharmaceutical company Ciba-Geigy was also the world's second-largest pesticide manufacturer, with 12 percent of the global market and over \$2 billion in pesticide sales annually. Similarly, of the world's seven leading pesticide manufacturers, five rank among the world's largest seed com-

panies. Ciba-Geigy's seed sales in 1987 were \$152 million. Other unlikely seed merchants include Royal Dutch Shell, Dow Chemical, and the drug companies Sandoz, Pfizer, and Upjohn.

The profit potentials and market opportunities offered by biotechnology are indeed remarkable, and nowhere do they appear to be more promising than in agriculture. According to the Rural Advancement Fund International, a nonprofit environmental organization, "Of the 405 enterprises in 19 countries engaged in the commercialization of new biotechnologies, 103 are working in agriculture. Fifty-one of these are concentrating on agriculture-inputs research. Analysts suggest that shortly after the year 2000, about \$12.1 billion of the estimated \$28 billion seed market will account for contributions from biotechnology." And even these figures may be low. *Science Digest* cites one consulting company that estimates the market for biotech agricultural products at \$50 billion to \$100 billion a year by the turn of the century.

Many of the seemingly odd corporate alliances came about when the potential for profit in applying biotechnology to agriculture was recognized. Writer Jack Kloppenburg, Jr., explains, "Many of the corporations which have been most active in acquiring seed companies—Ciba-Geigy, Monsanto, Sandoz, Pfizer, Lubrizol, Occidental Petroleum, Stauffer, Shell—have a great deal in common: They are all transnational corporations with petrochemical and/or pharmaceutical interests."

According to Kloppenburg, behind all this merger activity between chemical and seed companies is the growing recognition of the seed "as the ideal vehicle for the delivery of agrichemicals to the field." Through biotechnology, many of the chemical giants realize that they can increase the market for their products by developing seeds that are resistant to the chemicals they manufacture. The irony of this is clear. On one hand biotechnology in agriculture is being sold to the public as a means of decreasing pesticide usage because, we are told, through biotechnology we can genetically engineer plants with built-in resistance to disease and pests. But the most aggressive biotechnology research is conducted by the major chemical and pesticide manufacturers, and their research is not focused on the development of pest-resistant plants, but rather on pesticide resistance. With biotechnology it becomes possible to unite seeds and pesticides at the genetic level. A seed could be genetically coded to respond to, or require, a given pesticide. As one executive put it, "Genetics and chemicals together make the most long-term sense."

While many researchers involved in biotechnology are still focusing their at-

tention on medical applications, it is in the area of agriculture that we are seeing the greatest flurry of commercial activity. Once the initial barrier was traversed and the U.S. Patent Office decided to extend proprietary rights over genetically engineered life-forms, companies lined up to assert their ownership. In 1986 alone, more than 5,600 patent requests were filed for genetically engineered organisms. The floodgates were also opened when regulatory agencies decided to approve the open-air trial of a biotech organism designed to inhibit frost on tomato plants. Since then tests are being approved with increasing frequency and decreasing regulatory delay.

Developing new higher-yield plants, proponents say, will help feed the world. And in response to concerns about the excessive use of agricultural chemicals, we're assured that the genetic engineering of pest- and disease-resistant plants will naturally phase out the use of toxic pesticides.

"It is good for farmers because it has the potential to lower their costs and raise the value of their crops," says Dr. Ralph W. F. Hardy, president of the Boyce Thompson Institute for Plant Research, an independent research center on the campus of Cornell University in Ithaca, New York. "It is good for the consumers because, for instance, crops are being designed for higher nutritional value that can grow well without all these pesticides."

Despite all the fanfare and enthusiasm surrounding biotechnology, some remain skeptical. Those counseling caution with the new technology fear that the allure of mega-profits may be creating a scenario that differs significantly from the "Feed the world" and "No more chemicals" slogans of the biotech proponents.

Many people are concerned that the monopoly on life's necessities by a handful of multinational corporations does not bode well from any perspective—technological, social, or environmental. Many of the companies racing to patent their biotech inventions today, and assuring the public of their safety, are the very same ones that have created some of the gravest health and environmental disasters in the world. The pharmaceutical industry, for instance, gave us drugs like D.E.S. and thalidomide. Notwithstanding the growing body of scientific literature indicating that the use of antibiotics in animal feed is having adverse effects on human health, the world's drug giants continue to promote their use.

Ciba-Geigy introduced DDT, which was received with worldwide acclaim. Ciba's chemist, Paul Müller, won the Nobel Prize for physiology in 1948 for his work with DDT. Indeed, the chemical did appear to be able to accomplish miracles when it was first introduced, most

notably in eradicating malaria.

Almost immediately, however, stories concerning the other side of the chemical began to surface. "Even as WHO [World Health Organization] was announcing its successes, reports were trickling in that various mosquito populations were becoming resistant to insecticides," states *Science Digest*. In the end the miracle became a nightmare. In some places animals were so contaminated by the "bioaccumulation" of the chemical as it moved up the food chain that they were unfit for human consumption.

Other pesticides were also hyped and used on a wide scale. The obvious question is whether we are going to give credence to those selfsame companies when they reassure us that their new products, the result of biotechnology, represent no danger to our health or environment. Traditionally, those federal regulatory agencies that monitor

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our food supply and grant permits for the use of new agrichemicals and drugs have taken an optimistic view of new technology. They have accepted assurances of safety, often in the absence of valid scientific proof. When many of the pesticides were first introduced in the 1950s, federal agencies granted them exemptions from regulation because, agency officials assured us, these chemicals would degrade and dissipate, leaving no toxic residues on food or in the environment. This same pattern is being repeated today with biotechnology.

Assurances by the White House Office of Technology Assessment about biotechnology sound uncomfortably similar to the safety assurances we got from government agencies regarding pesticides. Chlorofluorocarbons, for instance, were once believed to be the safest of chemicals. We now recognize them as the destroyers of the earth's ozone layer. While our government agencies seem all too willing to take that chance with the ozone, is this really something we all agree to?

The Department of Agriculture, for

example, has long been a supporter of big business in food production. It has promoted the use of pesticides, livestock drugs, and high-yield hybrid seed, and has essentially told farmers to "get big or get out." In a speech to the Institute of Food Technologists in June 1988, then secretary of agriculture Richard E. Lyng said, "The ability of food and agricultural exporters to innovate and adapt their products, using new technology to improve both efficiency and quality, will become a decisive factor in expanding our markets. . . . The expanded economy that results will facilitate long-term food trade and the use of new technologies for food storage and preservation. The U.S. wants to take full advantage of the benefits of our rapidly evolving technologies, and export these to the world."

As they focus on the economic advantages to be gained from technological progress, the Department of Agriculture and other federal agencies have turned a blind eye to any of the negative effects from the unbridled use of these technological tools.

About 30 years ago, researchers discovered that adding the antibiotic chlortetracycline to animal feed not only increased an animal's resistance to disease, but also caused the animal to gain weight without an increased amount of food. According to estimates by the F.D.A., 80 percent of swine, 60 percent of cattle, and 30 percent of all poultry in this country are raised on antibiotic-treated feed.

Industry tells the American farmer that with the help of genetic engineering miracles can truly happen. But scientists are beginning to worry that the widespread use of antibiotics in meat production may be having a very serious impact on the general public. In 1983 Earl Rasmussen, a 69-year-old farmer, died of salmonella poisoning and 17 others were hospitalized. Federal authorities linked the poisonings to hamburger meat from cattle that had received antibiotics. Earl Rasmussen's death confirmed what many scientists had feared for a number of years: By killing off less hardy bacteria, the antibiotics were creating a new resistant form of bacteria that could be passed on to humans. According to *Science* magazine, "Many researchers claim this genetic engineering is partly responsible for the increased incidence of bacteria that cannot be killed with conventional antibiotics. In nearly 25 percent of the reported cases of human infections by salmonella—which typically causes food poisoning—the germs are resistant to drugs."

It was precisely these fears that caused many European countries to ban the practice of using sub-therapeutic doses of antibiotics in animal feed. Similar bans were proposed in 1977 in this country, but, reports *Sci-*

ence, "Lawmakers, under pressure from farmers and pharmaceutical companies, asked for further studies."

According to the Centers for Disease Control, reported outbreaks in the Northeast and Middle Atlantic areas of the country increased fivefold between 1976 and 1985. A study conducted by the National Academy of Sciences estimated that four million cases of food poisoning occur each year as a result of salmonella or the bacteria campylobacter, commonly found in chicken. While many maintain that proper cooking will kill bacteria, according to the C.D.C. study, cooking does not destroy salmonella.

In addition to antibiotics, pharmaceutical companies offer ranchers a number of other drugs designed to make their work more lucrative. Among the most potent of these are the synthetic growth hormones, many of which contain estradiol, a female hormone that causes animals to convert feed into muscle tissue at an accelerated rate.

Like antibiotics, however, the cost to the consumer of industry's widespread use of hormones may far outweigh the benefits. Between 1978 and 1982, doctors in Puerto Rico reported that about four percent of children under age nine were being treated for abnormal sexual development, including early menstruation, breast development, and pubic hair growth. Infants as young as one year old were observed with the symptoms. Dr. Carmen Saenz, a pediatric endocrinologist, was one of the first to draw attention to the epidemic. According to Dr. Saenz, the source of the problem was the growth hormones fed to chickens and cattle on the island. She, and other doctors, noted that when meat was withdrawn from the children's diet, their symptoms subsided.

The American government and industry spokespersons denied any link. After their initial investigations, the

Centers for Disease Control, the F.D.A., and the U.S.D.A. said that they found no hormone residue in meat, poultry, or dairy. But Dr. Saenz remained convinced. She had chicken samples analyzed by a biochemist in France, whose results did indeed reveal abnormally high levels of estrogen. Additional testing by the C.D.C. confirmed the presence of hormones in chicken and beef.

One of the latest additions to agriculture's pharmacopoeia is biosynthetic milk hormones. One such drug is now being tested by the American Cyanamid Company, one of the largest investors in biotechnology in the U.S. According to the company, this growth hormone can produce a 25-percent increase in milk production. But will this result in cheaper milk?

The milk glut has become so unmanageable that in 1986 and 1987 the government picked up the greater part of the tab for the most urgent supply-control measure ever attempted—a \$1.8 billion program to pay 14,000 farmers to slaughter 1.5 million cows.

The widespread use of bovine growth hormones has aroused the concern of some scientists. Dr. Samuel Epstein, a professor of environmental and occupational medicine at the University of Illinois, believes that "the use of milk hormones poses serious risks of adverse public-health effects that have not been adequately considered." Though proponents of bovine growth hormones claim that these drugs are "species-specific," and thus cannot possibly have effects on humans, Dr. Epstein maintains that the drugs are active in a wide range of species, including goats, pigs, sheep, mice, and even fish. Accordingly, the industry has changed its position and now claims that the hormones are "species-limited." But even that claim, says Dr. Epstein, has to be questioned for two reasons.

First, he notes that scientific studies

have indicated that under certain circumstances, particularly when an individual's protein digestion is impaired, the hormones may, in fact, be active in humans. Of additional concern, says Dr. Epstein, is the stressing effect that these hormones will have on cattle, leading to immune suppression and the activation of latent viruses like bovine leukosis and bovine immunodeficiency. "Levels of such viruses in hormonally treated milk and their human infectivity should be investigated with particular reference to risks of immunosuppression and leukemia," he maintains. "The relationship between these viruses and the AIDS complex is of further concern." Furthermore, he says, the increased incidence of disease in hormonally treated cattle will increase the use of antibiotics.

Before we can cure AIDS, or at least stop it from spreading, we are going to have to realistically examine the causes. Our researchers seem content to explain AIDS as a freak act of nature. But what if this is not so? What if, in fact, vaccines—administered to both humans and animals—are at the root of this epidemic? The government is certainly not going to assume responsibility for a mishap of such proportions—nor is any vaccine manufacturer. And yet, if we do not at least explore the possibility that not only our vaccines but our genetic engineering in general are unleashing unknown dangers into the environment, AIDS may turn out to be merely the first of the man-made scourges created in the frenzy to cash in on the miracles of biotechnology.

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