

resurgence

BREAKING THE LAW OF LIFE

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The way we steal genetic materials from the Third World is nothing but modern-day biopiracy.

THE BRAVE NEW frontier of genetic engineering is extending humanity's reach over the forces of nature as no other technology has ever done. Scientists can now isolate, snip, insert, recombine, rearrange, edit, programme, and produce biological and genetic material. In fact, scientists for the first time have the potential to become the architects of life itself, the authors of a technological evolution designed to create new species of microbe, plant and animal that are more profitable for agriculture, industry, biomass energy production, and research than the ones nature gave us.

This biotechnology boom in the industrialized world has massively increased corporate demand for an unconventional form of natural resources: not the minerals and fossil fuels of the industrial age, but rather living materials found primarily in the Southern Hemisphere.

According to the World Resources Institute, more than half the world's plant and animal species live in the rainforests of the Third World - and nowhere else on Earth. Ironically, as industrial expansion and pollution reduce the number of species, we are witnessing a "gene rush" as governments and multinational corporations aggressively scout the continents in search of genetic material.

"Bioprospecting" is a potential gold-mine for both science and business, since genetic material found in the developing world may yield cures for diseases as well as cash. But what also looms on the horizon, and in fact is already occurring in many parts of the developing world, is "biopiracy", where corporations use the folk wisdom of indigenous peoples to locate and understand the use of medicinal plants and then exploit them commercially. us and European scientists hoping to find cures worth billions of dollars have even taken samples of the blood, hair, and saliva of indigenous peoples. Indigenous peoples' knowledge, their resources and even their bodies are being pirated, and they receive little or nothing in return.

MODERN-DAY BIOPIRACY is not just the product of new science and corporate greed, but also of new law. The economic trigger for bioprospecting was provided by a little-known 1980 us Supreme Court decision, *Diamond V. Chakrabarty*. Its impact makes this unheralded court decision one of the most important judicial decisions of the twentieth century. The case began in 1971 when Indian microbiologist Ananda Mohan Chakrabarty, an employee of General Electric (GE), developed bacteria that could digest oil. That same year, GE applied to the us Patent and Trademark Office (PTO) for a patent on Chakrabarty's genetically engineered oil-eating bacteria. After several years of review, the PTO rejected the application under the traditional legal doctrine that life-forms ("products of nature") are

not patentable.

The case was eventually appealed to the us Supreme Court, which handed down its surprise opinion in June, 1980. By a five-to-four margin the court ruled that the patent was to be granted. The highest court in the United States had decided that life was patentable, stating that the "relevant distinction is not between living and inanimate things, but whether living products could be seen as 'human-made inventions.

Allowing a patent on a life-form proved to be a slippery slope: In 1985 the PTO ruled that genetically engineered or altered plants are patentable. In 1987 the PTO extended patenting to all altered or engineered animals. Within a few years, microbes, plants, animals, human cells, cell lines and genes were being patented.

The impact on the globalization of biotechnology has been profound. A corporation or government entity can expropriate a natural substance found in a Third World location, isolate valuable genetic material, patent it as the company's property, and have a monopoly on commercial uses of the genetic product for approximately two decades. By a margin of one vote, the us Supreme Court handed over the genetic commons of the Earth to private ownership.

Biotechnology and new patent law have allowed companies to capitalize on even the smallest of life-forms. The Merck pharmaceutical company has patented microbial samples from nine countries. These include soil bacteria from a heather forest on Mount Kilimanjaro, a Mexican soil fungus useful in the manufacturing of male hormones, a fungus found in Namibian soil of potential use in treating manic depression, soil bacteria in India that serve as an anti-fungal agent, and Venezuelan soil bacteria patented for use in the production of antibiotics.

And Merck is not alone in its corporate ownership of micro-organisms. Each year the drug industry spends billions searching the world's soils for valuable micro-organisms.

The biopirates are also on the lookout for profitable, patentable plants. In one remarkable example, several Northern corporations have been granted more than thirty us patents on the neem tree of India - and not only on the tree, but also on the indigenous knowledge about its many uses.

In another act of biopiracy, two drugs derived from the rosy periwinkle - vincristine and vinblastine - earn \$100 million annually for Eli Lilly. The plant is indigenous to the rainforest of Madagascar; and the country has received nothing in return.

Pharmaceuticals are among the most lucrative areas for the international biopirates. In Europe, Australia, Canada and the United States the market value for both prescription and over-the-counter drugs based on plants is estimated

to be in excess of \$70 billion. Well over 50% of the world's estimated 250,000 plant species are in tropical rainforests. Only a small fraction of them have been investigated as a source of potential new drugs, and the rapid destruction of tropical forests has hastened corporations' screening, appropriation and patenting processes.

The mounting intensity of the biopirates' assault on Third World genetic resources can also

be seen in the enormous pressures placed on governments by agricultural and drug companies to pass the General Agreement on Tariffs and Trade (GATT) and other international trade structures, including the Convention on Biological Diversity, that cement the right of private actors to patent the resources and indigenous knowledge of the Third World. The result is an ever-increasing use of patenting and licensing agreements by transnational corporations to secure a monopoly over valuable genetic materials that can be developed into profitable drugs and energy sources.

THE BIOPIRATES ARE interested not only in microbes and plants, but also in the very bodies of indigenous peoples. For decades the United States and other industrialized countries have been buying the blood of the poor in the Third World and selling it on the open market. Now scientists and researchers are racing to locate, identify and find commercial uses for human genes from various indigenous populations. The search for valuable human genetic material is fuelled by the fact that human genes and cells are now patentable. Over the past decade the US Patent Office has allowed patents on human genes, cells and cell lines. The lure of patent profits is leading a growing army of international gene hunters hoping to find potentially profitable genetic materials from Third World peoples.

For example, in May 1989 researchers took blood samples from twenty-four members of the Hagahai tribe of Papua New Guinea. The patent application describes the Hagahai as "a 260-member hunter- horticulturist group" that inhabits New Guinea's Madang Province. A cell line developed from the Hagahai might be valuable in diagnosing adult leukaemia and chronic degenerative neurologic disease.

Another patent claim filed on behalf of the us government involves a human cell line derived from a forty- year-old woman and a fifty- eight-year-old man, both of the Solomon Islands; this cell line, too, may be useful in diagnosing disease. In neither case were the people asked for their consent, nor were their traditions and values considered.

In 1991, an informal consortium of scientists in North America and Europe launched a campaign to take blood, tissue and hair samples from hundreds of "endangered" and unique human communities throughout the world. The initiative is called the Human Genome Diversity Project (HGDP).

Many indigenous communities have condemned the HGDP. In February 1995, leaders representing indigenous nations throughout Canada, the United States, Panama, Ecuador, Peru, Bolivia and

Argentina issued a statement opposing the HGDP and noting that it "opens the door for potential widespread abuse of human genetic materials for scientific, commercial, or military purposes . . . The proposed research holds little or no benefit to the donor populations."

To reverse the rapidly increasing biopiracy that is sweeping the globe, it is imperative that the current regime of bioimperialism be replaced by international structures based on biodemocracy: recognition of the intrinsic value of all life-forms and preservation of their genetic integrity. Biodemocracy recognizes the contributions and rights of source

communities and requires that nation- states renounce the patenting of life and put an immediate moratorium on genetic engineering. ~

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