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COVER: The insulation values of clothes are being quantified to help consumers dress more comfortably throughout the year. See story p. 396. (Drawing by Annie Lunsford)

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SCIENCE NEWS OF THE WEEK

Adding Life to Patent Law

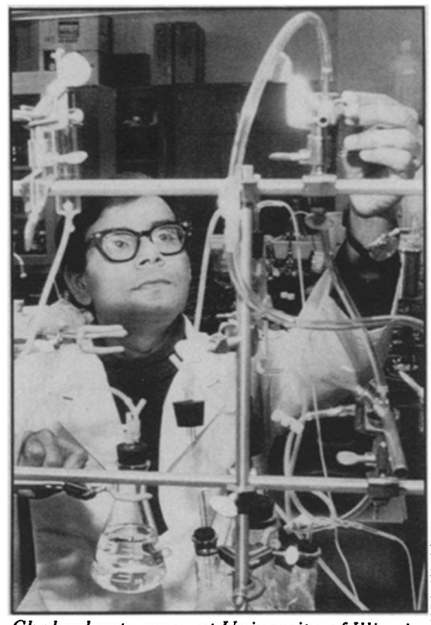
Live microorganisms are appropriate subjects for a patent as long as they are products of human ingenuity, the U.S. Supreme Court has ruled. The decision settled a case brought eight years ago when a patent examiner rejected an application from General Electric Co. for a bacterium that can break down crude oil. G.E. scientist Ananda Chakrabarty had cross-bred and fused existing strains of *Pseudomonas* bacteria, each of which can degrade a component of crude oil, to make an organism that breaks down several components simultaneously.

The Supreme Court justices agreed to take a narrow view of the genetic engineering issue. Although presented with arguments about potential safety risks of the research, they decided such matters are the proper business only of Congress and the President. "The briefs present a gruesome parade of horribles," Chief Justice Burger writes in the opinion of the Court. "Our task, rather, is the narrow one of determining what Congress meant by the words it used in the [patent law] statute; once that is done our power are exhausted." The opinion points out that Congress remains free to amend the statute to exclude from patent protection those organisms produced by genetic engineering.

The 5 to 4 split in the Supreme Court vote derived from disagreement over just what Congress did mean in its patent law. The minority opinion is that the legislature did not intend the Patent Act of 1793, as re-enacted in 1952, to include living organisms. The justices argue that two subsequent congressional acts extended patent protection to plants, but not to bacteria. "If a new act was needed to provide patent protection for the plants, it was equally necessary for bacteria," the dissenters say. "In short, Congress decided to make only a subset of animate 'human-made inventions' patentable."

The majority of the justices hold that the relevant distinction is not between living and inanimate things, but between products of nature and human-made inventions. "[Chakrabarty's] discovery is not nature's handiwork, but his own; accordingly it is patentable subject matter . . .," finds the majority. It goes on to say that exclusion of bacteria from the acts affecting plants may reflect previous legal distinctions or the fact that the Patent Office had already issued a few patents for microorganisms, including an 1873 patent on yeast granted to Louis Pasteur.

The Supreme Court ruling is being condemned by some citizen groups and lauded by genetic engineering firms. The Peoples Business Commission, which had warned of the dangers of genetic engineering, says the decision lays the groundwork for corporations to own the processes of life. In contrast, Stephen Turner of Bethesda Research Laboratory finds the ruling "very good news." He says the decision will signal the world that the United States is going to create an environment for the successful development of a genetic engineering industry.



Wide World

Chakrabarty, now at University of Illinois.

Stock analyst Nelson Schneider, who has specialized in following the genetic engineering business, agrees on the "positive impact" of the decision. "The psychology and publicity are going to be of great benefit to the field," he says. In practical terms, the decision will only affect at most one-third of the genetic engineering business, Schneider points out. When an organism is used as a manufacturing agent, the important patent is on the end product, not on the organism (SN: 3/29/80, p. 205). Less frequently, however, the organism itself is the product, as in the case of the oil-eating bacteria. How often companies actually apply for patents, Schneider predicts, will depend on how much detailed information will have to be made in public in the application.

Already perhaps more than a hundred patent applications have stacked up. In addition to patents on specific bacteria, the basic processes of the gene-splicing technique are under consideration. If Stanford University and the University of California win patents applied for in 1974, those doing genetic engineering may have to obtain licenses and pay royalties. Stanford says it would give nonexclusive licenses with low royalty, but may demand compliance with safety requirements. □