BIOLOGY

More gene-splice business

When E. F. Hutton talks, even E. F. Hutton listens. And the securities firm is heeding its own advice. After providing the business community with seminars and newsletters on biotechnology, E. F. Hutton has leaped into the fray with its own new company. Named DNA Science, Inc., the New York-based company will commercialize advances in biotechnology, genetic engineering and related areas of life science research, the parent firm announced.

The new company is expected to enter agreements with several universities and other research groups, and it has already arranged to fund research at the Weizmann Institute in Israel and market any promising developments from 19 selected research projects there. They include work on three types of interferon, monoclonal antibodies, an antiviral vaccine, synthetic antigens, diagnostic instruments, photochemical solar energy collectors, animal toxicology and genetically engineered agricultural products. The funding ($25 million over five years) will be carried out via another new company, jointly owned by DNA Science and the Israeli Veda Research and Development Corp. This intermediate company is called Taglit, which is "discovery" in Hebrew.

DNA Science will be financed with $50 million from large institutional investors, rather than through a public stock offering. Among the executives chosen for the company are Nelson Schneider, an E. F. Hutton stock analyst who has specialized in biotechnology developments, and Zsolt Harsanyi, a geneticist from Cornell University Medical College who has been working on a report on genetic engineering for the U.S. Congressional Office of Technology Assessment. The purpose of the new company, according to the chairman and chief executive officer of E. F. Hutton, is "to organize an effective transfer of technology from a leading scientific community to an evolving, high-risk commercial marketplace."

Yeast receive nitrogen fixation genes

The complete set of 17 genes that carry information essential for nitrogen fixation has been transferred from a free-living bacterium into a higher organism—a yeast. Scientists at Cornell University report that the genes don't seem to function in their new environment, and they are trying to find out why. They have determined that two copies of the bacterial nitrogen-fixation gene cluster are integrated into a yeast chromosome. After 40 generations the clusters can be excised and moved back into bacteria that do not normally fix nitrogen. The genes will again direct nitrogen fixation there. This result indicates that the yeast does not rearrange the bacterial genes while they reside in its chromosome.

The transfer of the gene cluster was accomplished by snipping the long segment of DNA from the bacterial *Klebsiella pneumoniae* chromosome and inserting it into a plasmid. The plasmid was reproduced in the popular laboratory bacterium *Escherichia coli*. Once large quantities of the nitrogen fixation genes were available, the scientists used a second plasmid to allow yeast cells to pick up the genes and insert them into the chromosome. For the future, Aladar A. Szalay, Ada Zamir (who is on sabbatical leave from the Weizmann Institute), Claude V. Maina and Gerald R. Fink hope to transfer such genes into fungi that live in close association with plant roots, and eventually directly into plants. The experimenters say that much more research will be needed before green plants can be "taught" the nitrogen fixing capabilities that bacteria already possess. But cost savings to agricultural production would be immense if crop plants could incorporate nitrogen directly from the air instead of requiring nitrogen-fixing microorganisms in the soil or chemical fertilizer.

SCIENCE & SOCIETY

Surprise slowdown in mortality decline

Life expectancy rose at a record pace throughout most of the world during the 10 years following World War II, with the most impressive gains made by developing nations. What makes this "quite without precedent in history," says Davidson Gwatkin of the Overseas Development Council, is that the gains were more rapid than the increases in the United States and most, if not all, of Europe, even though the life expectancies in developing nations were 15 to 30 years below those in Europe and the U.S.

But no more. Recent findings show that the rapid increases in rates of life expectancy "have begun to falter," Gwatkin writes in the December POPULATION AND DEVELOPMENT REVIEW. And most unexpected is the slowing pace of health improvements for much of the developing world.

A 1962 United Nations report predicted that within 10 to 20 years "the vast majority of the world's peoples will have an expectation of life at birth of 65 years or more." But the most recent United Nations estimates show only 30 percent of the world had met that goal by 1978. What's more, while an inevitable decline in mortality increases was expected to come sooner for developed nations, it appears to have come at least as soon for developing nations (whose citizens worldwide share an average life expectancy still in the mid 50s).

Gwatkin sees two possible explanations for this phenomenon: Either conventional medical approaches "ran out of steam" by the time communicable diseases—such as smallpox—had been checked, or social and economic developments in the developing world are not proceeding as fast as had been projected.

Cleansing the world's waters

One program that could prove essential to reviving the formerly rapid increase in life expectancy throughout the developing world began last month. Called the International Water Supply and Sanitation Decade, United Nations Secretary General Kurt Waldheim describes it as offering "the possibility for achieving as great a change in the quality of human life as any program ever launched by the United Nations." Eighty percent of all diseases are water related; already people with water-borne diseases fill half the world's hospital beds and die at a rate of 25,000 a day.

Though nations invested $15 billion in water-supply and sanitation facilities between 1971 and 1975, less than 10 percent of the world's people had access to as much clean water as they needed. Via its clean water decade the UN will try to get $300 billion devoted to improving water supplies and sanitation in the poorest, most neglected regions. Bettering rural water supplies is expected to cost at least $20 per person; urban-water systems could run a minimum of $300 per person served.

Other economic developments

- Conservationists may get the facts and figures necessary to make more persuasive economic and resource-management arguments as a result of a three-year, $650,000 grant to the Wilderness Society from the Richard King Mellon Foundation. Headed by a resource economist, the society's new economic team will employ another economist, forester and ecologist. Focusing on conflicts over public lands managed by the federal government, this group will share its findings with federal agencies, other conservation groups and the public.
- Only one percent of China's college-age population will attend school due to forced cutbacks in its modernization drive. Shortages in classrooms, libraries, dorms and other resources will drop 1981 college enrollments to 25 percent of the 1978 levels.