



**DISCUSSANT RESPONSE**

by

**Stephen G. Post**  
School of Medicine  
Case Western Reserve University  
Cleveland, Ohio, USA

to **Kenneth Mellanby's**

**ENVIRONMENTAL AND AGRICULTURAL RISKS OF GENE TRANSFER  
BETWEEN SPECIES**

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IN RESPONSE TO KENNETH MELLANBY: GENE TRANSFER AND RISK

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Professor Mellanby points out the many benefits of genetic engineering, which holds the promise of revolutionizing modern agriculture. He points out that for thousands of years, by selective breeding, human beings have been enhancing crop plants and domesticated animals. As an extension of the desire to enhance the human condition, we seek to engineer plants resistant to pests, in order to avoid the use of dangerous insecticides; or to develop higher food yields by increasing the size and quality of substances stored in edible seeds.

In agreement with Professor Mellanby, there is no question but that agricultural genetic engineering holds promise. Indeed, there is no call for an extensive response to the obvious truth he expresses. I will only raise related questions about engineering as big business, about the patenting of life, and about human enhancement. My hope is that Professor Mellanby will offer comments on these.

1. There's No Business Like Agribusiness

I respond to Professor Mellanby with copies of Genetic Engineering News in hand. Here one reads of Du Pont's maize-related gene transfer technology being used by the Swiss chemicals giant Ciba-Geigy, about Transgenic Sciences, Hana Biologics, and

many hundreds of other biotech companies on the genetic engineering scene. One column is titled "Wall Street BioBeat," one "BioEurope," another "Biostrategies in the Pacific Rim." This truly remarkable, glossy presentation of big business and genetics gives one reason for pause. It appears that too much agricultural genetic engineering is driven by profit motives, by economic opportunism. Nowhere do we see wide community dialogues of an interdisciplinary sort informing the endeavors of such vast powers. Granted, most of the purposes expressed by this new corporate empire are not dangerous, for here enlightened self-interest recommends beneficent goals. But the size of this huge financial mecca is astounding, and one must view it as an industrial complex easily isolated from societal consensus. It is susceptible to all the moral and ethical difficulties of big business, from the devastation of traditional ways of life to the occasional injustices of agribusiness. This commercialization of genetic engineering is worrisome. I wonder what Professor Mellany thinks about this?

## 2. Patenting Life? The Very Idea

And I see something more disturbing in the new world of patented life forms. Patented life is a notion I have never come to terms with. In June of 1980, the United States Supreme Court decided that Ananda Chakrabarty, a microbiologist at the University of Illinois, could patent an engineered bacterial strain capable of degrading oil, and useful for cleaning up spills.

Since then, thousands of life forms have become patented property, owned by individuals and businesses, valued as corporate secrets. In my view, this marks the beginning of an entirely new human relation to nature. No longer stewards caring for a sanctioned natural order, we became creators, and then possessors of what we create. This means that the classical sense of awe before the mysteries and wisdom of nature has no place in the human future. This possession means as well that a science once content with understanding the laws of nature now seeks to reconstruct it. True, as Professor Mellany writes, human beings have altered species in the past by breeding techniques. But let us not consider only continuities with the past, for there are discontinuities as well with respect to the power and magnitude of our new tools. What are the implications for the way we think about nature?

### 3. "Enhanced" Human Beings?

More to the point, what are the implications, if any, for how we think about human nature? Might this new power over the natural environment bound weaken our sense of the goodness of human nature as it is? Shall we not easily continue on to "enhance" that human nature, with some dubious image of human perfection in mind? And are we not like the sailor who climbs the mast of the ship to be like some new god above, only to see the ship list from side to side and finally capsize into the waves?

Summary Statement

It may not be safety that is so much at issue, because surely laboratory controls are reasonably well developed. I worry more about the tension between stewardship and patent, between efforts to create perfect plants and perfect humans. I worry as well about the power of this huge new industry to ignore the expressed and genuine values of communities, as the rage for profit sometimes does.