

process of applying for patents stemming from the Harvard research. The company hopes to begin clinical trials with a commercial product as early as fall of 1982. So, although Monsanto and Collagen may not see immediate profits from the Harvard investment, the potential in

the long run seems to be there. Friedlaender said that if nothing else, the Harvard announcement constituted a legitimate pat on the back for Monsanto.

All in all, it appears that the press release overstated the case. The work

improved the lives of children who were grossly deformed. But other researchers have conducted similar work based on a well-known principle studied by Urist. "To say that it's a whole new spanking thing just boggles the imagination," said Bassett.—MARJORIE SUN

POINT OF VIEW

Leon Rosenberg on the "Human Life" Bill

On 23 and 24 April, the U.S. Senate held hearings on a bill (S. 158) that would effectively ban abortion by defining conception as the moment "human life" begins. The hearings, which seemed designed to marshal "scientific" evidence to support this point, took an unexpected course when Yale University geneticist Leon Rosenberg argued forcefully that there is "no scientific evidence which bears on the question of when actual human life begins." Rosenberg, who personally favors individual choice where abortion is concerned, had not been actively engaged in the abortion controversy before. Excerpts from his testimony follow.*

... The crux ... of the bill before you is the statement ... "that present day scientific evidence indicates a significant likelihood that actual human life exists from conception." I must respectfully but firmly disagree with this statement for two reasons: first, because I know of no scientific evidence which bears on the question of when actual human life exists; second, because I believe that the notion embodied in the phrase "actual human life" is not a scientific one, but rather a philosophic and religious one. I base my opposition on a third reason as well, namely that I am convinced that the clinical implications of this bill are fundamentally counter to the best interests of the people of the United States.

... There is no reason to debate or to doubt the scientific evidence indicating that conception is a critical event in human reproduction [that establishes the potential for the development of human life]. ...

When does this potential for human life become actual? I do not know. Moreover, I have not been able to find a single piece of *scientific evidence* which helps me with that question. Not surprisingly, a great deal has been spoken and written on the subject. ... In 1967, Dr. Joshua Lederberg, a Nobel laureate in genetics wrote the following: "Modern man knows too much to pretend that life is merely the beating of the heart or the tide of breathing. Nevertheless he would like to ask biology to draw an absolute line that might relieve his confusion. The plea is in vain. There is no single, simple answer to 'when does life begin?'" ... I have no quarrel with anyone's ideas on this matter, so long as it is clearly understood that they are personal beliefs ... and not scientific truths.

If such beliefs are not scientific, you might say, just why can't they be made scientific? My answer is that science, per se, doesn't deal with the complex quality called "humanness" any more than it does with such equally complex concepts as love, faith, or trust. The scientific method depends on two essential things—a thesis or idea, and a means of testing that idea. ... I maintain that concepts

such as humanness are beyond the purview of science because no idea about them can be tested experimentally. In discussing this matter with a number of scientific colleagues, I found a similar view. ... Dr. Lewis Thomas, a leading medical scientist, philosopher and author observed that "... whether the very first cell that comes into existence after fertilization of an ovum represents, in itself, a human life, is not in any real sense a scientific question and cannot be answered by scientists. Whatever the answer, it can neither be verified nor proven false using today's scientific knowledge. It is therefore in the domain of metaphysics; it can be argued by philosophers and theologians, but lies beyond the reach of science." ... If I am right in asserting that the question of when actual life begins is not a scientific matter, then, you may ask, why have so many scientists come here to say that it is? My answer is that scientists, like all other people, have deeply held religious feelings to which they are entitled. In their remarks at these hearings, however, I believe that those who have preceded me have failed to distinguish between their moral or religious positions and their professional, scientific judgments.

... My third reason [for opposing S. 158] is based on my clinical experience and judgment. I believe that this bill has implications both far-reaching and counter to the health interests of our people. This bill, if enacted into law, will prohibit the use of such commonly employed contraceptives as certain birth control pills and the intrauterine devices because these forms of birth control prevent implantation into the uterus of the fertilized ovum that has, by legal decree, been made a person. Moreover, this bill will protect a conceptus that has possibility of realizing its human potential. ... Finally, this bill would almost certainly stop all amniocentesis used for prenatal diagnosis of a growing list of genetic disorders ... for which no successful treatment is at hand. ...

Let me conclude by divesting myself of all scientific or clinical credentials and speak simply as an American. I believe we all know that this bill is about abortion and about nothing but abortion. If this matter is so compelling that our society cannot continue to accept a pluralistic view which makes women and couples responsible for their own reproductive decisions, then I say pass a constitutional amendment that bans abortion and overturns the Supreme Court decision in *Roe vs. Wade*. But, don't ask science or medicine to help justify that course because they cannot. Ask your conscience, your minister, your priest, your rabbi—or even your God—because it is in their domain that this matter resides.

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