

Of Life and Death, Motherhood, and AIMBE

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Can a child have no mother? That's the question that the Maryland Court of Appeals was recently asked to answer. The case involved a man who wished to have a child, and arranged for donated eggs fertilized with his sperm to be implanted into a surrogate mother. The case was brought to absolve the surrogate mother of any legal responsibility for the child. As a consequence, the child's birth certificate will not list a mother's name.

The specter of cloned humans has floated over our heads ever since cloned animals became a reality. Whether we ever clone a human, progress in reproductive technology will have a profound impact on our society, as the case above implies. Life on demand, the ability to select which fertilized eggs are carried to term, and the technological ability to insert genes of one species into another are here today.

There is a concern, perhaps even a fear, that the way reproductive technology is headed will cheapen life, will obliterate the need for interpersonal relationships, and will rot the cohesive fabric of civilized society. New means to produce humans, sub-humans, and super humans will be developed and tried, possibly leading to Huxley's *Brave New World* or George Orwell's *1984*. Can we take that chance?

End of life issues are just as compelling. Modern medical technology has given us Karen Ann Quinlan and Teri Schiavo, two cases where we really didn't know when to pull the plug. The problem is that we really don't have a hard and fast definition of life, so we can't automatically recognize its obverse, death. In some sense, medical and

biological engineering got us into this mess, so we would expect medical and biological engineering to help find a solution.

But, wait, the tale gets worse. There are medical and biological engineers who are developing electronic chips to be implanted into dysfunctional brains to replace faulty neuronal structures. While this development may have noble consequences for individuals, what does it do for our society? Can't these chips make it even harder to detect when an individual is beyond resuscitation?

"Technology is neither good nor bad; nor is it neutral." I have used this quote from Melvin Kranzberg before, and it seems to sum up the situation. Technology can be used for good, and at the same time have bad consequences. No matter, it will have profound consequences.

Likewise, there have always been those who cry "wolf" for every imagined revenant. They see danger with every step, and prognosticate the demise of civilization with every new technological advance. It may be that the creation of a new life in a test tube will not doom our civilized society, and that the alarmists will have once again forecast ten of the next two crises, but perhaps there is reason for genuine concern this time.

How does this concern AIMBE? It should be of essential interest, because of AIMBE's role in public policy formulation and support. Thus far, AIMBE has confined its public policy activities to issues clearly related to the practice of medical and biological engineering. Its greatest successes were as a result of its support for biomaterials legislation and establishment of NIBIB. The hot issues of AIMBE, these days, are related to funding for NSF and NIH. Is that enough? I don't think so.

We need to broaden our ideas about what AIMBE represents, and about what issues are important to us. Questions of life and death, the consequences of tissue engineering and genetic manipulation, and environmental impacts are also our issues because of the things we do, the results of our work, and the comprehension we have for the consequences of technology. After all, who should be more aware of the potential effects of today's technology than the very people who are developing tomorrow's technology? We have AIMBE Fellows who are interdisciplinary, multidisciplinary, and heterodisciplinary; we have broad and visionary perspectives, and it is our responsibility (according to codes of ethics of our professional societies) to lead the discussion about future uses and limits to technology. We should concern ourselves with the impacts of technology, not just its development.

It is time to use our collective imaginations to formulate new positions to new issues. We must break the mold of interest only in self-serving issues directly tied to medical and biological engineering funding and research. We owe it to our constituencies to craft intelligent positions on the issues that will affect, not just us, but our whole world. I, for one, would like to see us think big.