

FORECASTING THE IMPACT OF RELIGIOUS SELF UNDERSTANDING
ON GENETICS AND GENETIC RESEARCH IN THE YEAR 2033

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“Part of the very essence of joy is a vision of the kingdom of God, which is, was, and ever shall be. The temporal fruit of this joy is the leap into the future, to wrest this vision from its position on the horizon and pull it into the present, to make it a reality for this world. This is exactly what Jesus did, but the people were afraid, and quickly pushed the vision back to the horizon. We have kept it safely chained there ever since, but the memory of what Jesus did, and the knowledge that it could happen again, has ennobled all mankind.” Elise Boulding (*The Joy That Is Set Before Us*, William Penn Lecture, 1956)

In August of 2005, as an elected delegate to the Churchwide Assembly of the Evangelical Lutheran Church in America (ELCA), I rose to the microphone to speak in support of developing a social statement which would address emerging issues in genetics and biotechnology. Having read *Genetics Testing and Screening: Engagement at the Intersection of Faith and Science* (prepared for the ELCA Division for Church in Society), I had become convinced that it was the role of the Church to speak publicly to the significant theological, ethical, public, and pastoral challenges posed by developments in genetic research. The 2005 Churchwide Assembly agreed and authorized the preparation of such a social statement. However, due to the speed at which such a large organization moves, it will be the 2011 Churchwide Assembly which will consider the proposed statement, that is --- barring any unforeseen circumstances. The need to influence the public conversation concerning the theological and ethical impact of genetics and genetic research led me to seek out participation in the Faith Forum on Genetics, as a member of the study group at Trinity Lutheran Church, Gresham, OR.

As a participant in the Faith Forum on Genetics Program, it became clear to me that the questions we were asking ourselves, questions about the impact of developments in genetics and genetic research on our religious self-understanding, were laying the framework for a set of emerging knowledge technologies which would impact and cause significant changes in the way such research will be done in the future. Knowledge technologies are developing in four areas: natural language processing, artificial intelligence, database architecture, and grid computing. The exponential growth in biomedical data is changing the nature of human-machine interactions. I am convinced that by finding the implicit patterns in the natural language data, based on our religious self understanding, as people of faith, we can and should affect the very nature of scientific research.

Change has become a constant. The creation of these new knowledge technologies is directly linked to change in the way truth is defined. Manuel Castells refers to this result as the “affirmation of identity as the source of meaning.” (Castells, 2003). The shift from Newtonian to Quantum physics has validated a way of knowing that is not based on observable fact. Subjective experience is increasingly given as much weight in defining truth as objective fact. As people of faith, our ability to think symbolically allows us to deal with the most profound aspects of reality which defy any other means of knowledge. Responding to the need to assess the long range impact of genetics and genetics research on humanity’s future, we can use our images and symbols to bring to light the deepest senses of being and meaning.

The shift away from the written word as the source of meaning or truth has not only affected faith formation and the way we experience community, but also the way research gets done. Institutional research is giving way to research unhampered by geography, time, space, and through the use of virtual networks. In fact, key global organizational structures are already in the process of being organized around electronically processed information networks (Castells, 2000). These networks, freed from the institutional structure of the Industrial Age, are able to move toward open source research and redesigning the intellectual property rights to promote human rights. In this new environment, according to Castells, the organizational man gives way to the flexible woman.

The paradigm shift from institutional to flexible, from male to female, from the “hard sciences” to the integration of spiritual practices is eroding the institutional control of the male dominated scientific/technological paradigm. The current paradigm is fundamentally based on control, domination and experimentation with nature and results in millions of animals tortured and slaughtered, hundreds of thousands (or maybe more) fertilized cells and embryos destroyed. The new paradigm is very interested in what women say about the meanings and consequences of their research and about the contributions human can make for animal health.

The ease of network communications, allowed by the internet, changes the influence it is possible to exert on politicians or other decisions makers. More individuals are being able to contribute to a debate. The question: Is the force of any argument put forward devalued by the plurality of sources of arguments? Allowing a greater pool of experts to contribute leads to some fascinating viewpoints but sometimes muddies the waters. People of faith can serve as a needed filter by providing the ethical framework for examining the long range impacts.

Our group disagreed with Dr. Audrey Campbell that we needed to translate our theological anthropology into terms that an evolutionary anthropologist could understand. On the other hand, we agreed with Dr. Ted Peters’ assessment that it is worth investing our ethical energy in creating theological visions of the future, based on God’s promises, i.e. ethical energy such as we are expending in this conversation. Our group envisioned a future where the public would require that a shift away from the male-dominated scientific and technological establishment, from material to non-material inputs, from linear to non-linear thinking, from risk/benefit analysis to long range forecasting of the impact of genetics research on quality of life variables.

To do this, we had to move beyond Beauchamp and Childress’ concept of “Principlism” (Beauchamp and Childress, 1977) and their four principles for bioethical decision making: autonomy, nonmaleficence, beneficence, and justice. We had to move beyond Husted and Husted’s concept of “Symphonology” (Husted and Husted 2001) and their bioethical decision-making model based on six contemporary bioethical standards: autonomy, freedom, veracity, privacy, beneficence, fidelity. To accurately assess how the risks and benefits affect the intangibles that make up what we call “Quality of Life” concerns, we had to “count the cost” in terms that meshed with our religious self understanding. For us as Lutherans,

AHuman life in all phases of its development is God given and therefore has intrinsic value, worth, and dignity.” (ELCA, 1991)

The point at which human life begins was a topic of discussion. For most of us the difference between an open and closed embryo made sense to us. While our opinions differed, we all clearly felt the need to move away from the use of human embryos and killing of animals to advance research. Our focus, however, was on humanity's intrinsic value and capacity for spirituality.

Religion and spirituality are intimately linked with human biology and psychology throughout the life cycle. The research into the neuropsychology of religious experience has expanded by including disciplines such as neuroscience, psychology, cultural anthropology, and human development - disciplines that have matured only over the last 50 years. This integrated synthesis can hopefully create a unifying vision of spirituality and an evolutionary architecture that can be glimpsed, excavated and explored.

The first quality of life concept that we tackled was stewardship of the natural environment. The effect of genetic research on environmental quality of life is critical to the Christian faith. As Lutherans, it is especially to our understanding of environmental stewardship. We believe that

“Humans, in service to God, have special roles on behalf of the whole of creation. Made in the image of God, we are called to care for the earth as God cares for the earth. God's command to have dominion and subdue the earth is not a license to dominate and exploit. Human dominion (Gen 1:28), a special responsibility, should reflect God's way of ruling as a shepherd king who takes the form of a servant (Phil 2:7), wearing a crown of thorns.”
(ELCA, 1993.)

While examining the salmon debate, we saw how the misguided attempts to use hatchery salmon to increase the wild salmon population had not solved the wild salmon issue. The problem is systemic, not just caused by a lack of wild fish but by damage to the ecosystem that supported both hatchery raised and wild fish. It became apparent that the use of linear thinking to try to control non-linear living systems played a significant part in creating our looming ecological crisis. Our Christian religious perspective is built around metaphors or symbols of non-linearity. As Christians we saw that we could add to the conversation by invoking the limits of human power on the sacred nature of the larger whole within which human affairs take place. Again, questions about cloning and cross species genetic engineering brought to the forefront concerns about the need for systemic analysis and the realization that you can't change just one thing.

The ability to obtain work was the second concept that we all agreed was important to our self understanding as people of faith. As Lutherans we understand that we all share in the Awork of God.” We live out our vocation as people of God through our work. Each genetic development should be examined in light of its long range impact on humanity's ability to obtain work. Should we move forward with technology that allows us to screen people for genetic disorders? What if that same technology can be used to determine who is worth the risk of employing? All of our group participants had some direct personal connection to a person or persons with a genetic defect or disorder. The issues around the ability to obtain work had a significant impact on whether we as individuals would choose to know whether we carried a certain gene.

As we dug deeper into the case studies, questions began to form about the impact of genetic research on the definition of disability and sparked conversation about two concepts related to our Christian self-understanding, Equity and Autonomy. We asked questions concerning the long range impact of genetic research on fairness and justice issues, including end of life decisions. Who will be the recipient of health advances spurred by developments in genetic technology? What changes should we advocate to ensure that integrity of the life processes which God has created are respected?

We began our reflecting on our self-understanding of end of life issues with the realization that as Christians

"Whether we live or whether we die, we are the Lord's" (Rom 14:8). For those who live with this confidence, neither life nor death are absolute. We treasure God's gift of life; we also prepare ourselves for a time when we may let go of our lives, entrusting our future to the crucified and risen Christ who is 'Lord of both the dead and the living' (Rom 14:9)" (ELCA, 1992).

We concluded our reflection by understanding that, as Lutherans, we

Recognize the biblical obligation that each person in society is responsible for the neighbor. No one of us is free to pass by 'on the other side' (Luke 10:31-32) (ELCA, 2003)

We determined that our religious self understanding as Christians required that we view all humans as beings created in the image of God, all of equal worth to the Creator. The Church, we determined, has a duty to speak publicly for those whose voices are not being heard; or better yet to empower them to speak for themselves. We discussed the fact that many clinical trials are now being conducted outside of the United States, where research participants do not have the same protections afforded American test subjects. We asked how will this affect diversity, opportunity, and tolerance? And what will be the long range impacts?

The final two concepts we tackled were the most global: sustainability and fulfillment. Asking questions about long range impact of genetic research on sustainability is essential. As Lutherans, we do not buy into the eschatology of the "End Times." The Earth is not a resource to be used up and replaced by God with the "New Jerusalem." Although we look forward to Christ's return to earth, we do not feel that fostering the destruction of the earth will cause that time to come any sooner. Our questions about the long range impact of genetic research on sustainability were wide reaching. Questions about sustainability were hard to separate, however, from questions about environmental quality, equity and autonomy. When we looked at the long range impact of genetically modified seed, for example, we were concerned that the seed was hard to contain, was sterile, and had to be purchased every year. What if the sterile seed affected the ability of the wild seed to reproduce? What happens when you make farmers dependent on purchasing seed? What happens when you link food aid to the acceptance of genetically modified food? We came up with more questions than answers, which seemed to be the point of this study.

The concept of fulfillment is often thought to be a creation of secular western thought, rather than a component of a Christian worldview. Questions about how the long range impacts of genetic research on humanity's deepest values are often brushed aside by critics who, quoting Maslow's hierarchy of needs, assume that hungry people have no need for self fulfillment. The key difference

is the focus on self. The question for the Christian is “What is self that we should realize it” (Elise Boulding, 1974).

Boulding, a Quaker, Futurist and Sociobiologist, points out that the goal of our lives is not self-realization or self actualization. Spiritual growth lies in the practices or disciplines of spirituality, such as those of contemplative prayer. Self actualization is but the shadow of overflowing love. As Christians we are new creations. We are known by our love. Our ability to deny self and focus outside self, however, leads us to ask questions about the fulfillment of humanity’s deepest values in a more nurturing, interactive, and non-bureaucratic way. As Christians, we can demand that the impact of genetic research on fulfillment of humanity’s deepest values should be interpreted more globally. Long range forecasting should be free of the social and cultural bias of Western thought.

The keys to developing a long range forecast is think beyond what we expect to happen, to be able to expect the unexpected. This requires that we **retrieve** as much information as possible to answer the question --How Much Do We Really Know? We need to **extract** the facts to be able to answer the question: How widespread is the assess to information? We need to **mine** the information to find the implicit patterns to be able to answer the question ---Where is this matter on humanity’s radar screen?

We used “quality of life” variables to stimulate our way of thinking about who were as people of faith and what our preferred future would look like. It was our task to visualize a positive future for the society which has in so many ways rejected a religious self-understanding, and to have the inner resources and moral integrity to consider concrete personal actions that could help make such a future a reality. Our group found comfort in developing a preferred vision of the future because it did not feel like a useless exercise. Thriving organizations have a shared vision of the future they believe in, while less successful groups have visions they hope for but do not believe. We developed a preferred future that we could not only believe in, but advocate for in the developing public conversation. [To assist others in thinking through their religious self understanding, I developed a tool to assess the long range impacts on genetics and genetic research, which is included at the end of this paper.]

In the end, our preferred future came out looking very much like the 14 forecasts prepared by the Institute of Alternative Futures (Institute for Alternative Futures, 2004). In the year 2033, 25 years from now, we envisioned that:

- 1) All genetic research will require research participants to engage in public conversations to explore the ethical dimension of the research, including social determinants of health (differences in education, food, housing, security, wealth, and work) and quality of life and well-being. (Ibid. #10. Ethical Dimensions of Science, #2 Open Source Research).
- 2) The scope of these conversations will be global and explore different cultural perspectives. (Ibid. #12. Healthy Societies).
- 3) The development of increasingly sophisticated computer simulation models of biological processes will take most the guess work out of risk analysis regarding tangible inputs. (Ibid.#8. Evolution of Systems Biology). The development of models predicting the impact on ecological and health systems will be useful but less reliable, hence the need for additional bioethical analysis.
- 4) A multi-disciplinary scientific community would emerge where at least half of the PhD’s combine Ahard sciences” and a spiritual disciplines informed by social sciences including religious studies. (Ibid. #7 Merger of Disciplines)

The Institute for Alternative Futures (IAF) based their forecast on comprehensive environmental scanning of the literature and interviewed a number of scientists. The greatest skepticism of this forecast lies in its prediction of the merger of hard science with spirituality. Even Draper Labs, who work closely with the IAF, had second thoughts about the merger of hard science disciplines with religious practices. But this preferred future seems to fit our understanding that we as people of faith are about to have significant impact on the way scientific research is conducted.

To bring this future to fruition, Christians, who are Lutheran in understanding, are called to engage in social and political life, to seek a moral basis they share with non-Christian fellow citizens, and to participate in public moral discourse. To accomplish this we need to bring both the clergy and the laity up to speed and give them a deep familiarity with the scientific details of genetics and genetic research.

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