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Science, Faith and Ethics

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Contents

<i>Foreword</i>		vii
<i>Preface</i>		xiii
Chapter 1	Frontiers of Knowledge: Where Science Fiction Becomes Science Fact	1
Chapter 2	Origins of the Universe and Matter	14
Chapter 3	The Origin of Life	36
Chapter 4	The Evolution of Life	65
Chapter 5	Ethical Issues of Implants	84
Chapter 6	Ethical Issues of Transplants	119
Chapter 7	Ethical Issues of Genetic Manipulation of Life	132
Chapter 8	Effects of Technology on Health Care and Resource Allocation	152
Chapter 9	Ethical Issues of Birth Control	178
Chapter 10	Ethical Issues of Death Control	190
Chapter 11	Quantum Theology: The Evolution of Faith	201
<i>Epilogue</i>		205
<i>Index</i>		207

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Foreword

To introduce this book, *Science, Faith and Ethics*, is a double privilege. The Chautauqua Institution is an educational and cultural centre in the state of New York in the USA. As director of the Institution's Department of Religion in 1991, I invited Professor Larry Hench to give five addresses in the Hall of Philosophy. He chose as his theme "Science, Faith and Ethics". Larry Hench is a scientist who is also a believer. He does not live in two worlds separated by a chasm centuries in the making. He is a single, unitary being, living and working in a world that, as scientist, he investigates and that, as believer, he acknowledges to be created by God, the God who is maker of all things in heaven and earth. To read these 1991 lectures, now further reflected on, worked out and refined, is to acknowledge with gratitude the workings of a mind that has sought throughout a notable career to be true to the demands and disciplines of both modes of thinking, the scientific and the theological.

My second occasion for gratitude is that the lectures, now in this richer and fuller form, are a lucid commentary on what one of the founders of the Chautauqua Institution over a century ago called "the Chautauqua idea". This is, he said, the idea that "all life is one and religion belongs everywhere".

The words come from a form of late 19th century Protestant piety, but they are entirely appropriate to the emerging 21st century conversation between scientists and theologians.

From the time of the Enlightenment, science and religious faith developed two increasingly independent ways of viewing, speaking about and describing the core of their disciplines. The two languages and their separate descriptions of reality seldom intersected. To illustrate: At a June 2000 conference held in Philadelphia and

funded by the John Templeton Foundation, scientists and theologians assembled to address the intriguing theme "Extending Life, Eternal Life".

Evolutionary biologists present at the conference argued, and with some cogency, that human beings are within touching distance of being able to control their own evolutionary destiny and to extend the average life span far beyond its present day limits. Some even argued that in future we may come to regard death itself as a disease to be cured rather than an inevitable consequence of cell death.

In contrast, the theologians at the conference spoke of eternal life, but they did so largely in spiritual terms, defining eternal life as a way of being in relation to God and living towards God. The impression I had in listening to both was of watching and hearing two parallel tracks of speakers, with those on one track using the language of science and those on the other the language of theology, but neither entering significantly into genuine dialogue with the other.

The Philadelphia conference was a clear example of the split between the "How?" of science and the "Why?" of the believer. The dichotomy is typical of many conversations between scientists and religious believers. This dangerous split creates a division between God and the world and eventually leads to a denial of any interaction between God and the world and to the claim that nothing lies beyond the explanations given by the physical sciences. Accepting the split, the scientist will then pursue research into the truth of his or her world of study, but will do so without reference to the other voice in the quest for truth, that of the theologian and the religious believer.

The religious believer, in a similar way, will continue to speak about God or eternal life, but without reference to the world and to the voice of the scientist.

The time has come when it is important for scientists to think intentionally about the unthought in their way of looking at the core of their disciplines, and for theologians likewise to think intentionally about the unthought in their own way of looking at their doctrines, ethical teachings, rites, worship, prayers and ceremonies.

The question that theologians can ask, in conversation with scientists, is: "If the world had a beginning, who made that beginning, and what does it mean that we have a universe at all?"

There is an unthought in science that needs to be thought about. Correspondingly, the question that scientists can ask, in conversation with theologians, is: "How do you connect what you say about the divine Creator or about God's revelation, with what we have to say in our physics, chemistry, biology, sociology and psychology?"

So scientists can reflect and say, "Yes, when we use our instruments to measure some part of the empirical world, we must also recognize that we have no way of measuring fully what appears to be a unitary and intelligible cosmos of contingency and freedom."

There is an unthought in theology that needs to be thought about. Theologians can reflect and say, "Yes, when we speak about God as Creator we must acknowledge that God does not create as we do, and therefore we must not limit how God creates."

Larry Hench is a scientist for whom the Chautauqua idea is of paramount significance: all life is one and religion belongs everywhere. Good scientist that he is, he wants to know the truth of what he investigates. He is thus controlled, as scientist, by the scientific method, which is to pursue his research and let what he investigates disclose itself as it is, to reveal its own reality to him. He allows, in other words, the object of his investigation to control how he knows about that reality, how he formulates his knowledge about it, and how he proposes to verify it. As believer — as one for whom all life is one and for whom religion belongs everywhere — he takes another way of looking at the truth. Looking at, say, dead or inert bone as a scientist he will, by the forms of his own discipline, seek to exercise control over the object of his study.

But looking at the human beings who will benefit from his research, he will find another dimension: he now interacts with living beings. They, more than inert bone, have bearing on how he treats them, how they respond to him, and how he treats his discipline. Even more, then, when as believer he stands before the God he acknowledges as Creator, it is the one who is known, God, who

controls how Larry Hench thinks about life, his science, his career, or his family. In both spheres, his science and his religious faith, he follows purposefully the true scientific method. He allows the reality towards which he turns to control the way by which he knows it: as scientist, concerned with the world of ceramics and tissue creation and regeneration; as believer, acknowledging that he can know God only as God can be known, i.e. through God's self-revelation and grace. Here is a scientist who therefore as scientist looks away from God to the nature of the world and a believer who as believer looks away from the world to the Creator.

In this regard, the book makes a significant contribution to the huge change that is going on in contemporary science in its understanding of the foundation of knowledge. Knowing what we know has become increasingly complex. The change in the contemporary discussions between the world of science and that of faith represents a marked departure from the dualism that bedevilled both science and religion from the time of the Enlightenment. It is a recognition that all life is one: a unitary and intelligible cosmos. It is a recognition that we need the work of both science *and* theology to help us understand that cosmos and learn what its ethical implications are in all the issues of life, whether at its beginning, in its multiple forms, or at its end.

The readers of this book will, I hope, come to its conclusion with three deepened convictions: first, of the need for scientists and theologians to be in conversation with one another about their core studies and reference points; second, of the need for the two disciplines to apply the same rigour to their pursuit of truth; and third, of the need to find an ethic that draws its integrity from what both scientist and theologian have both found in their respective disciplines.

Larry and June Hench and I share a love of music. It occurred to me once, listening to a symphony concert with them in the amphitheatre at Chautauqua, that by enjoying the beauty of the music we were also obeying God. The enjoyment was the obedience. As he has explained how he approaches his work as scientist, I have

come to see that Larry Hench is a scientist who obeys God by the very rigour of his research and achievements. He has therefore helped to build a bridge between academic science and the practice of religious worship and prayer. This is the recovery of the spiritual perspective about which the founders of the Chautauqua Institution spoke. All life is one, and religion is everywhere.

I have pleasure, then, in commending the book *Science, Faith and Ethics* to readers.

*Ross Mackenzie, Historian
The Chautauqua Institution
September 25, 2000*

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Preface

This book is an updated version of a series of five lectures I presented at the Chautauqua Institution Department of Religion seminar series, Chautauqua, New York, USA, July 28–August 3, 1991. The title of the lecture series was “The Impact of Science on Faith and Technology on Ethics”. In these lectures I explored the various ethical issues associated with the growing use of human spare parts to prolong and enhance the quality of life. The lectures were based upon my 25 years of experience in developing new materials for use as medical implants. Of particular concern in the lectures was the problem of people expecting miracle cures when modern technology is used in medicine.

In 1996 I accepted the Chair of Professor of Ceramic Materials at Imperial College of Science, Technology and Medicine, University of London. I currently also serve as Director of the Imperial College Centre for Tissue Regeneration and Repair. I co-direct with Professor Julia Polak, Head of the Department of Histochemistry, a large multi-disciplinary research programme in tissue engineering. Our objective is to activate the human body’s repair processes to overcome the degradation and failure of ageing tissues. This research involves using the latest generation of science and technology for growing specialised cells in culture, including embryonic stem cells, and establishing a genetic basis for tissue regeneration and repair.

The need for new approaches to the repair of deteriorating tissues is expanding at an alarming rate as the world’s population increases and the percentage of the population above the age of 60 increases even more rapidly. Nearly all options for repair or replacement of body parts have some degree of risk and lead to some degree of ethical concern. Alternative methods of repair, such

as tissue engineering, that may involve genetic manipulation of cells, are especially sensitive. These concerns are addressed in this book.

An important goal of this book is to discuss the scientific and ethical issues associated with the beginning and ending of life and the preservation of the quality of life in between. A further goal is to examine the relevance of faith in an age of technological dominance. Throughout the book I explore the hypothesis that ethical dilemmas arise from a conflict of uncertainties. I examine the origin of these uncertainties and the importance of faith in dealing with them.

This book was started in the United States and was finished in the United Kingdom. Consequently the effects of science and the distribution of health care in both countries are discussed. The contrasts are intriguing. The US still has no national health care policy after 10 years of debate, whereas the national health care system in the UK is under increasing attack to become "more like the US system". In the book I examine some of the reasons for this curious state of affairs. I hope to have kept straight the differences and similarities between the two countries, but if I have erred I hope the reader will understand.

Larry L. Hench