Section I

An Extraordinary Event

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In recent years, scientists and the general public have realized that intelligent life may well be found throughout the universe. It is extremely unlikely that we are the only civilization in our galaxy. It may even contain dozens or hundreds of civilizations scattered among its 400,000,000,000 stars. If we receive a richly detailed message from one of these civilizations or engage in a lively dialogue, the effects on our civilization could be pervasive and profound.

Contact with intelligent life from somewhere else in our galaxy will probably occur sometime in humanity's future. It might take the form of a richly detailed radio or laser message from the distant civilization, for instance, or a super-intelligent probe that reaches our planet. Such contact might occur next year, or 20 or 30 years from now, or not for 100 years, or even longer.

Few events in the entire sweep of human history would be as significant and far-reaching, affecting our deepest beliefs about the nature of the universe, our place in it, and what lies ahead for human civilization. Seeking contact and preparing for successful interaction should be two of the top priorities on our civilization's current agenda.

Such contact will surely be an extraordinary event in all of human history. Over the next thousand years, several significant events will, no doubt, have a powerful, positive impact on human society. But making contact with another civilization will likely be the event with the highest positive impact of all.

A few hundred scientists, social scientists, artists, engineers, and technicians around the world are currently involved in the search for such contact—the search for extraterrestrial intelligence (SETI). This volume, *When SETI Succeeds*, examines the potential impact on human culture, science, philosophy, and society.

Any other civilizations in our galaxy are probably much older than human civilization. Two factors support this assumption. First, the vast majority of stars in our galaxy are much older than our Sun, many of them millions of years older. It follows, then, that any civilizations on planets revolving around those stars likely arose much earlier than our own civilization did. Second, it seems quite possible that some civilizations survive for a million years or even longer. If the civilizations in our galaxy range in age from a few thousand years up to a million years, then we are one of the youngest: by most definitions, human civilization is not much more than 10,000 years old.

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Because other civilizations in our galaxy are thousands of years older than human civilization, they have probably advanced in certain ways beyond our present level of development. Some civilizations pre-

sumably fail to survive once they discover nuclear weapons or other means of causing their own extinction, but surely others learn to cope successfully with such problems and then survive for a very long time. Some of them may be 100,000 years or even millions of years more advanced than we are (Tough, 1999).

A Comprehensive Report

When SETI Succeeds presents a comprehensive review of the potential impact that contact with a highly advanced intelligence will have on human civilization. This report is based partly on the insights of the various authors and on other literature. And it is based partly on the ideas that emerged during a unique two-day seminar in the summer of 1999.

That seminar, on the cultural impact of extraterrestrial contact, was generously sponsored by the Foundation For the Future because of its interest in the major factors that will affect human civilization over the next thousand years. Sixteen experts on the topic gathered together on the Kohala Coast of Hawaii's Big Island, just before the Bioastronomy '99 conference began at the same location.

This report, then, is neither a traditional "proceedings," nor a traditional review of the literature. Instead, it combines the best features of both forms. In this way it provides fresh, lively insights into the long-term impact when SETI succeeds.

SETI has not yet succeeded in detecting any repeatable evidence. But the range of strategies and the intensity of the efforts are growing rapidly, making success all the more likely in the next few decades. More than one strategy may succeed, of course, so that by the year 3000 we may well be engaged in dialogue with several different civilizations (or other forms of intelligence) that originated in various parts of our Milky Way galaxy.

The Focus: The Long-Term Perspective

Because of our society's focus on the immediate present and on the very short-term future, it is difficult to switch into a long-term perspective. As a result, most oral and printed discussions of contact focus on the immediate and short-term effects. In contrast, right from the beginning, my vision of this seminar emphasized the long-term perspective. As part of my responsibility for organizing the program and discussion, I prepared a set of instructions for the seminar participants, urging them to focus on the long-term effects of contact.

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Here are the exact words of those instructions:

The discussion will be sharply focused on the likely long-term impact of a dialogue between humankind and a highly advanced extraterrestrial civilization. Although the discussion will be fast-paced in an informal roll-up-our-sleeves working atmosphere, our time together is limited and therefore a sharply defined focus is necessary. Unfortunately we will not have time to discuss the short-term impact, the impact of detecting simply a dial tone with little other information, nor social science topics in general, but I hope other forums will be available for these topics. Long-term is emphasized because of the major differences between short-term and long-term effects of contact. The short-term effects are likely to be chaotic, frenzied, unsettling—perhaps marked by resistance and conflict, by extreme media reactions, and by political maneuvering or even warfare (military or covert). Although these effects are very important for the SETI field to study and prepare for, they are not the focus of this particular seminar. If handled well, presumably most of these short-term effects will fade within a few years. Our discussion here will focus on the potential effects on human civilization several decades or centuries after contact occurs.

High-Information Scenarios

If SETI succeeds, two types of contact are possible. One possibility is simply evidence that another advanced intelligence exists somewhere in the universe, with little information about its characteristics and no dialogue. One example is evidence of a Dyson sphere or some other major astroengineering project many light-years away, with no additional information about its creators. Another example is a radio message that arrives from many light-years away but is not successfully decoded even after many years of effort.

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The second possibility is contact that yields a rich storehouse of knowledge about the extraterrestrial intelligence and its history, technology, science, values, social organization, and so on. This could occur through an encyclopedic radio or optical message that we manage to decode. Because of recent progress in nanotechnology, artificial intelligence, and space exploration, we now realize that closeup contact with a small but super-smart probe is at least as likely a scenario. In fact, by monitoring our telecommunications, the probe will likely have learned our languages and be able to communicate with us quite effectively: no decoding necessary!

Since this seminar focused on contact as a high-impact event, my instructions to participants used the following words to emphasize high-information scenarios:

Because of the Foundation's interest in the factors that are especially likely to have a high impact on humanity, our discussion will assume that some sort of major information exchange or lively back-and-forth dialogue occurs between humans and some form of extraterrestrial intelligence. The particular scenario is not important in this seminar; it could be a rapidly translated encyclopedic message sent from 40 light-years away by radio or laser, for instance, or a small but extraordinarily intelligent probe sent by a civilization with technology 100,000 years ahead of ours. As Steve Dick noted in his Santa Cruz paper, "A 'dial tone' signal, only giving evidence of intelligence, will be quite different in impact from the decipherment of significant amounts of information" (Dick, 1995). We will, therefore, focus exclusively on the potential effects of high-information scenarios.

Viewing ourselves from an extraterrestrial perspective might be very useful in reducing our emphasis on differences and divisions among humans, and instead seeing ourselves as one human family.

The Long-Term Impact of Contact

This report examines five sorts of long-term consequences that could result from contact. To give you an overview before you read the next chapter, here is the core of each of the five.

1. Practical Information

We might well receive practical information and advice that helps our human civilization to survive and flourish. Possible examples include technology, transportation, a new form of energy, a new way of producing food or nourishing ourselves, a feasible solution to population growth, more effective governance and social organization, fresh views on values and ethics, and inspiration to shift direction dramatically in order to achieve a reasonably positive future. The message might also bring home to people the importance of eliminating warfare or at least eliminating weapons of extraordinary destruction. Viewing ourselves from an extraterrestrial perspective might be very useful in reducing our emphasis on differences and divisions among humans, and instead seeing ourselves as one human family.

2. Answers to Major Questions

We might gain new insights and knowledge about deep, major questions that go far beyond ordinary practical day-to-day matters. Topics in an encyclopedia-like message or closeup dialogue could include astrophysics, the origin and evolution of the universe, religious questions, the meaning and purpose of life, and answers to philosophical questions. We might receive detailed information about the other civilization (which might be deeply alien to us) and about its philosophies and beliefs. Similar information could be provided about several other civilizations throughout our galaxy, too. We might even receive a body of knowledge accumulated over the past billion years through contributions by dozens of civilizations throughout the galaxy.

What sorts of consequences will contact have for our religious ideas and institutions? Some religions may be deeply shaken by contact, or at least need to reexamine their set of beliefs. It seems clear, however, that humanity's religions have already flourished over many centuries despite a variety of scientific discoveries that conflict with religious views. And several religions have already incorporated the idea of extraterrestrial life. Although some religious leaders may denounce an extraterrestrial dialogue, most will surely embrace it as further evidence of God's infinite greatness.

3. Changes in Our View of Ourselves

Richly detailed information from an extraterrestrial civilization might transform our view of ourselves and our place in the universe, even our ultimate destination. We might gain a much deeper sense of ourselves as part of intelligent life and evolving culture throughout the universe—or at least part of a galactic family of civilizations. We might develop a deeper sense of meaning and connectedness to a universe filled with biology and intelligence. A new cosmotheology or global/cosmic ethic might arise, or a powerful secular movement of altruistic service to the universe and its long-term flourishing. Later in this volume, Steven Dick's paper discusses that theme.

Michael Michaud pointed out 22 years ago that "contact would be immensely broadening and deprovincializing. It would be a quantum jump in our awareness of things outside ourselves. It would change our criteria of what matters. We would have to think in interstellar, even galactic frames of reference. We would leave the era of Earth history, and enter an era of cosmic history" (Michaud, 1977).

In *The SETI Factor*, Frank White raised the possibility that SETI "may be an effort to achieve a new kind of connection with the universe, working within the framework that is acceptable to the Western scientific model. Perhaps SETI is an acceptable way for us to seek that reintegration, a feeling of connectedness which has been shattered by standing apart from the cosmos and examining it as something that is not alive, not intelligent, and separate from ourselves" (White, 1990).

4. Cooperation in Joint Galactic Projects

We might eventually play a role in some grand galactic project in art, science, philosophy, or philanthropy. Such projects might aim to solve fundamental mysteries of the universe, help other civilizations develop and flourish, or spread harmonious intelligent life throughout the galaxy.

In *The Extraterrestrial Encyclopedia*, Joseph Angelo has noted that contact "might lead to the development of branches of art and science that simply cannot be undertaken by just one planetary civilization but rather require joint, multiple-civilization participation across interstellar distances. Perhaps the very survival and salvation of the human race depends on finding ourselves cast in a larger cosmic role—a role far greater in significance than any human can now imagine" (Angelo, 1985).

Massive and rapid change could occur in the sciences…in business and industry…in the legal system…in the armed forces…

5. Long-term Negative Effects

If we incorporate extraterrestrial knowledge and advice into our human society, we may experience severe disruption, at least for a short time. We might suffer from enormous culture shock, temporarily feel inferior, or lose confidence in our own culture. Massive and rapid change could occur in the sciences if extraterrestrial science is deeply different, in business and industry if we learn about new processes and products, in the legal system if we move toward cosmic or universal laws, and in the armed forces and their suppliers if we eliminate the threat of war. Probably all of this should be regarded as simply the major cost we have to pay for incorporating new knowledge and possibilities. But will the short-term chaos and conflict be so severe that the negative consequences continue for decades or centuries?

Will our human culture (and even our genes) be obliterated by a more advanced civilization?

Will our science or philosophy "lose its nerve" when faced with far superior knowledge, and permanently retreat into trivia or resistance rather than embracing the new?

What other sorts of negative effects might be profound and long lasting?

What should humanity do now in order to maximize the positive long-term impact from an eventual dialogue…

What Next?

After exploring those five sorts of impact, the seminar participants turned to the question of "What next?" in their final session together. What should humanity do *now* in order to maximize the positive long-term impact from an eventual dialogue—in order to achieve the greatest possible benefits for our culture, science, worldview, and long-term future?

For me personally, the highlight of the seminar occurred during the exploration of this topic when Keiko Tokunaga, a young Buddhist priest, brought a fresh perspective to the discussion. Emphasizing the personal level, she gently pointed out the need for all of us to become better prepared for contact with an alien intelligence. Our own personal growth could

enable us to be more sensitive to the signals that we may be inadvertently sending out to extraterrestrial intelligence, for instance, and to reduce our ego and our defenses so that we become truly open to contact with something so alien—truly warm, welcoming, receptive, compassionate, and centered rather than scared or defensive or hostile.

With strength, courage, and a touch of whimsy, Keiko Tokunaga pointed out that perhaps some people in the room were already having the experience of being in contact with an alien—her! "Perhaps some of you respond to me as an alien, because I am not in your world of science or philosophy. Perhaps you look at me as some kind of another being, especially the way that I am dressed [as a Buddhist priest]. Your encounter here with me may be similar in some ways to your eventual encounter with ETI, whenever and wherever that occurs."

When asked what next steps I recommend in order to understand and prepare for the impact of contact, I always make three suggestions.

One, we need more research (focus groups and in-depth surveys, for instance) to understand the likely reactions of various cultural and religious groups in our society. Even raw data can be highly useful. For example, it is very instructive to read the verbatim responses of various religious leaders to Victoria Alexander's survey at http://www.accessnv.com/nids/articles/alexander/response_analysis.html.

Two, we need additional seminars to build on the results of the Hawaii seminar. As this report demonstrates, that seminar made a significant contribution to our understanding of the likely long-term impact of contact. But more thinking and discussion are clearly needed in order to reach a deeper and more cohesive understanding. In addition to the 1999 Hawaii seminar, three 1991–92 meetings on the cultural aspects of SETI provided a useful foundation for further thought. Those earlier meetings focused on SETI and history, human responses to contact, policy issues, and possible relationships between SETI and education, news, and entertainment (Billingham and others, 1994).

…prepare to communicate and negotiate with ETI in a friendly and cooperative manner, even if its behavior seems unfriendly.

Third, we need workshops that use role-playing to immerse the participants in the experience of contact. I experienced one useful model for such a workshop just two weeks before the Hawaii seminar. Called the second "Contact Planning" meeting and held in Denver, Colorado, this workshop was sponsored by the International Space Sciences Organization and organized by Kyle Pickford and Michael Lindemann. For me, there were three personal highlights. (1) The 23 participants offered a fascinating mix of backgrounds, beliefs, and competencies, but all became enthusiastically involved with the effort to anticipate just what might happen during the hours and days after contact with ETI. It was quite an experience to spend 48 hours immersed in contact! (2) We spent one afternoon in five groups: business, religion, science, government, and media/public. Each group role-played its behavior for each of eight scenarios. Although I have read lots of literature on post-contact behavior, this was the first time that I deeply grasped just how people in each of those categories may actually behave right after contact. Very sobering. (3) What can we do now to prepare? We spent the last few hours of the meeting generating and clustering various strategic planning possibilities. A large number of these ideas clearly fit into two clusters that I find very encouraging: (a) tell the general public the truth right away and (b) prepare to communicate and negotiate with ETI in a friendly and cooperative manner, even if its behavior seems unfriendly.

An Extraordinary Event

Each participant of the 1999 Hawaii seminar chose and thought about one of the six topics outlined above, and then summarized any resulting insights in a one- or two-page handout. When the seminar discussion reached that topic, we all took a few minutes to read the handout and then its author expanded on it. This procedure gave us a quick but thoughtful foundation for our discussion of each topic. The handouts are included in this report, along with the biographical sheet that each participant prepared.

During the past few years, the scientific search for extraterrestrial intelligence has become quite mainstream within science. Several strategies have already been implemented and more are being considered (Tough, 1999). Public interest is high. It now seems quite possible that our first contact with another civilization will occur within the next few decades. This first contact will, in turn, lead to redoubled efforts using a variety of strategies to achieve contact with additional civilizations.

Of all the positive events that occur during the next thousand years, this surely will have the most profound and pervasive impact on human civilization. It truly will be an extraordinary event.

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