

A REPLY FROM EARTH?†

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Abstract—An approach is proposed to developing a message from Humankind to extraterrestrial intelligence if we detect it.

1. INTRODUCTION

As the science and technology of the Search for Extraterrestrial Intelligence (SETI) have emerged over the past thirty years, so there has been a gradually increasing interest in examining the consequences of the detection of a signal transmitted by an extraterrestrial civilization. As a result of many years of discussion in the SETI Committee of the International Academy of Astronautics (IAA), a “post-detection protocol” was drawn up as a draft international document. After revisions, a final document entitled “Declaration of Principles Concerning Activities Following the Detection of Extraterrestrial Intelligence” [1] was approved by the International Academy of Astronautics, the International Institute of Space Law (IISL), the Committee on Space Research (COSPAR), and the members of Commission J of the Union Radio Scientifique Internationale (URSI), and will be considered by the International Astronomical Union (IAU). The Declaration will be made available by the IAA to all individuals and organizations conducting SETI, with a request that they consider becoming signatories. Some of the more important references to papers and reviews published on the various issues addressed in the Declaration are given in Refs [1-5].

The Declaration draws attention to the importance of unambiguous confirmation that the signal is indeed of extraterrestrial intelligent origin, of proper dissemination of the details of the discovery, and procedures for reporting and archiving the data. In addition, Principle 8 of the first Declaration of Principles states that:

“No response to a signal or other evidence of extraterrestrial intelligence should be sent until appropriate international consultations have taken place. The procedures for such consultations will be the subject of a separate agreement, declaration or arrangement.”

This paper addresses the question of this “agreement, declaration, or arrangement”, and suggests that the question of Earth's response be examined first by the SETI Committee of the IAA, in cooperation with members of other interested organizations.

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2. QUESTIONS

The detection of extraterrestrial intelligence could take many forms, and the exact scenario of such a detection may be unpredictable. In many potential scenarios, however, the same questions would arise. Should the human species send a message to the extraterrestrial civilization? Who decides? Are there reasons why Humankind should not reply? Who decides? If we decide to reply, what should we say? Again, who decides?

These questions lead to others. Should humanity respond as a unit, rather than as separate nations or organizations? Should we attempt to design a generic response, or await the circumstances of the detection before drafting a more specific response? Can we design a reply without a signal to analyze? A transmission from them that we detect could vary all the way from a continuous wave carrier signal to a very complex message. So the decision as to whether or not to reply and the decision on the content of our message will depend to a considerable degree on the nature of their signal. It might be argued that it is fruitless

at this time to even think about the content of our message in view of this unknown. However, it might be useful to assume, for example, that their signal has no message but is indisputably generated by a radio transmitter. What would we do if we detected their interplanetary radar? Conceivably our reply, should we send one, could vary all the way from the simple message transmitted by Drake from Arecibo [6], or the time consuming shipment of physical artifacts such as those carried abroad the Pioneer and Voyager spacecraft [7,8], to a lengthy description of the Earth, its history and our civilization. This question *can be* studied now.

It could also be argued that this whole exercise is premature since the date of detection of the signal is unknown and could be many years into the future. We do not agree with that position, and feel that the opposite is true; namely, that SETI searches of some magnitude are now underway or planned for in the near future. There have already been 50 searches, albeit with limited coverage of search space and therefore a low probability of success. However, for many years the Ohio State University Radio Observatory has been conducting a full-time search with their telescope; the META SETI-1 search at Harvard University has been underway full-time for 5 years, and META SETI-2 has just begun at the Argentine National Radio Observatory; the Berkeley SERENDIP machine has been in use for some years; recent searches have begun by the University of Western Australia at the Parkes Telescope; and a number of searches have been conducted at Nancay in France. In the mid-1990s the NASA Microwave Observing Project, which will be much more comprehensive still, will begin a 5-year Targeted Search and Sky Survey. It is possible that a signal may be detected in the next few years by one of these searches. The time to begin our studies on a "Reply from Earth" is now.

Many of the questions raised by a potential response are not primarily scientific in nature: they are more philosophical, social, and political. While scientists can make important contributions to the decisions that must be made, a response from humanity must be, in our view, more broadly based. But how do we achieve that?

3. PROPOSED APPROACH

We believe that the most fruitful way to begin addressing these issues is to focus on the process by which the human species as a whole might react to the detection of an extraterrestrial civilization. We suggest the development of an international agreement or declaration of principles that would establish procedures enabling all humans, through appropriate representatives, to participate in the making of decisions on a reply from Earth.

We therefore propose that the SETI Committee of the IAA, in cooperation with interested persons from other international bodies such as the International Institute of Space Law, begin drafting an agreement or declaration of principles that would set up these procedures. Of existing international bodies, the United Nations would appear to offer the most inclusive and legitimate framework for such procedures. We therefore suggest that the draft agreement or declaration of principles, when completed, be provided to the United Nations for its consideration, through the Committee on the Peaceful Uses of Outer Space. As the Committee acts on the basis of proposals made by its member states, the draft agreement or declaration would have to be proposed to the Committee by one nation or a group of nations.

An agreement with the potential importance of this one would need to be widely discussed before it was put in final form, through workshops, public debates, media coverage, and other forms of public discourse. However, the process of developing has to begin somewhere, and we believe that the SETI Committee of the IAA is a reasonable place to start.

4. SUGGESTED OUTLINE OF THE AGREEMENT OR DECLARATION

As a starting point for discussion, we propose that the draft agreement or declaration include the following principles:

1. A response to the detection of extraterrestrial intelligence should be on behalf of all Humankind. If Humankind decides to respond, it should do so with one voice, not many.
2. The decision on whether or not to respond should be made by an appropriate international body, broadly representative of Humankind.
3. The content of a reply should reflect an international consensus.

5. NEXT STEPS

We suggest that the draft agreement or declaration of principles be developed through the following sequence of events:

October 1990

The IAA SETI Committee establishes a working group to prepare a draft agreement and an associated white paper. The working group will include representatives of other interested organizations.

February 1991

The draft agreement and white paper are circulated to IAA SETI Committee members for their concurrence.

April 1991

Preliminary discussions of draft agreement and white paper by Board of Directors of IAA and Board of Trustees of IISL in Paris.

June 1991

Completion of draft agreement and white paper.

October 1991

Final decision on draft agreement and white paper by the IAA and IISL at the Congress of the International Astronautical Federation in Montreal.

November 1991

Draft agreement and white paper sent to IAF, COSPAR, URSI and IAU for information. At the same time, the President of IAA sends the draft agreement and the white paper to an interested national government with a request that the government submit them to the United Nations Committee on the Peaceful Uses of Outer Space.

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