Seti: Bertrand Russell Essay, Research Paper

Bertrand Russell wrote, “There are two possibilities. Maybe we are alone. Maybe we are not. Both are equally frightening (Jakosky 1).” The question of life in the universe is one that leaves many in a state of bewilderment. It becomes even more interesting when it leads to another question – that of intelligent life in the universe. Finding other intelligent civilizations among the interstellar space would greatly affect every aspect of our existence. Conversely, not finding such a civilization would force us to examine the purpose of our own existence.

To help answer the question, astronomers and scientists set up a program in search for extraterrestrial intelligence. This program, or SETI, was set up to verify, by observation that extraterrestrial life does exist. SETI tries to prove this by picking up and analyzing radio signals by means of satellites and advanced computers (Heidmann 116).

The history of the SETI program is quite interesting. It started back in 1959 with the help of two famous Cornell University physicists, Guiseppi Cocconi and Phil Morrison. Both claimed that it would be possible to communicate with other potential extraterrestrial life in space by the use of techniques used in radio astronomy (Heidmann 112). Together, they voiced their belief that if other “alien astronomers” elsewhere in the universe possessed radio telescopes, that it would be possible to converse between the two (Heidmann 112-113).

A young astronomer by the name of Francis Drake agreed with the theories of Cocconi and Morrison. He proposed building a radio receiver in order to listen for waves of sound being transmitted through space. It wasn’t until the spring of 1960 that Drake began his first project of SETI, Ozma. In this project, he was the first to conduct a search for signals transmitted from other solar systems. For two tedious months, Drake pointed an eighty-five foot antenna in the direction of two starts the same age as our sun, Tau Ceti and Epsil. A single 100Hz-channel receiver scanned nearly 400kHz of bandwidth, for a repeated series of patterned pulses that would indicate an intelligent message (Heidmann 113-144). Unfortunately, the only sound that came from the speaker was static. Though no intelligent life was found and project Ozma proved to be nothing but a disappointment, it actually spurred the interest of others who created a feasible scientific objective (“Project Ozma”).

In the 1960’s the Soviet Union dominated much of the SETI program. However in the 1970’s NASA’s Ames Research center, located in California began to take over. After nearly a decade of study and preliminary research, the NASA headquarters fully funded and adopted the SETI program. However, five years later Congress ruled the program a foolish unnecessary scientific endeavor that wasted valuable funding. Congress then decided to not allow NASA to support SETI and terminated the funding (“History of SETI”). Despite the obstacle, the SETI program was reborn, forming the SETI Institute. It’s first privately funded project, Project Phoenix, is the world’s most sensitive and comprehensive search for extraterrestrial intelligence that listens to radio signals being transmitted our way. The project focuses on Northern Stars by scanning only those that are sun-like and are more capable of supporting life (Heidmann 146).

The Phoenix Project is only one of the many projects run for the search of extraterrestrial intelligence, but is one of the most important. Another highly significant project in the search for other life would be the project run by the Columbus Optical SETI Observatory, or COSETI. This project was formed to promote the optical search for extraterrestrial intelligence. In other words, it seeks to detect pulsed and continuous wave laser beacon signals in the visible and infrared spectrums. Until 1998 however, little, or nothing was ever said to indicate that there might possibly be a sensible optical approach to SETI. Many researchers believe that extraterrestrials, if they exist, are so sophisticated that they would use lasers for their communications rather than radio waves. It is said that by the year 2005 that most SETI activities will be of the optical kind and that the Hubble Space Telescope (HST) could also be retrofitted for COSETI. (“The Optical”).

One of the more recent projects that we are faced with today is the SETI@ Home Project. This project allows the general public to get involved in the search for extraterrestrial intelligence by allowing them to use their home computers to search for signs of radio signals being transmitted to Earth from space (Kahney, “A Search”). Supposedly, anyone is able to participate by running a free program that downloads and analyzes radio telescope data. The philosophy behind this is that the majority of the SETI projects in existence today build large computers that analyze the data collected from the telescopes in real time. Apparently, none of the computers have the capacity to look at the signals too deeply, and the weakest signals are missed. SETI programs could never afford the type of computer power need to analyze both the strongest and weakest signals, so the SETI team came up with the idea to let individuals at home help them out. The SETI @home project simply uses a small screen saver program that has the ability to download bits of information from the SETI @home web site and can analyze that date and report the data back. (Hipschma, “The Problem”). However, a small glitch has been found in this process. Volunteers who are downloading and analyzing the information are wasting CPU cycles by processing data that has already been scanned. The SETI @home team regrettably announced that due to the overwhelming response by volunteers, the lack of storage space and manpower, they are processing the same 115 blocks of information from a two-day period in January. Truly sincere and apologetic, the team plans to release new data to the public by May 24th. (Kahney, “A Search”).

For decades, radio astronomers have been hunting for signals from alien civilizations. In an interview with Peter Ward, Donald Brownlee, authors of the new book “Rare Earth,” the two scientists argue that the emergence of higher life forms would be exceedingly rare. In order for life to exist many unusual happenings would have to occur for complex life to exist.

Ward presents a lot of factors in his book, that would lead us to believe that earthlings” are the only complex civilization. First, our solar system lies in a perfect habitable zone. Anywhere too close to the Milky Way would have too violent conditions, and too far away would lack the necessary metals for life. Ward also says Earth lies within a zone of the solar system where liquid water and sufficient energy exists to sustain life.

Seth Shostack, an astronomer for SETI, argues against Ward’s view in the interview. He states that humans have only just begun the search, but agrees that many factors must occur before complex life can exist. However, he argues that these conditions will happen again, and Earth is not so “rare,” as Ward had suggested. Shostack says the signs of intelligent life have not been found, but that should not deter the scientists in their search. He claims, “that it is a bit like sitting in bars if Spain in 1491, arguing whether Christopher Columbus will ever find a new continent.” He continues by saying that, “You can argue that ad infinitum, and it makes for good conversation. But in the end, you have to build the ships to do the experiment.”

Whether for or against the SETI projects, the search for life in the universe has become recognized as an interest of the scientific community. Its title is to search for extraterrestrial life and its purpose is to search for planets in other solar systems and their ability to shelter life. Unfortunately, the funds for research are often based on the basis of their scientific research and the results obtained, making it hard to come to a proper conclusion. While many may have developed their own opinions, the scientists are the majorities that disagree about life on Earth and on other planets. However it is the difference of opinions that make the topic the search for extraterrestrial intelligence interesting. Scientists may reason that the extraterrestrials do no exist based on his/her research and hypotheses. The search for radio waves is a prime example because we cannot guarantee success of finding any signals from outer space, especially if we do not know if they are even using radio signals. (Jakosky 171-172). Until we actually find a transmitted radio wave from the outer universe, we can only come to our own basic conclusions on what we believe. Some may agree that intelligent life exists among the stars, and others may disagree, claiming we are the only intelligent life form. Everyone is open to his or her own opinion!

Despite what many critics of the SETI projects claim, many believe that the program must continue. They believe that at any moment a signal could be detected. If we have been “listening” that long, why should we stop now? The investment of manpower and computer technology has been greatly improved in order to accommodate such research. They believe that since SETI is a program that has already been internationally established and together SETI is allowing humanity to embrace technology to be able to communicate with other worlds. Researchers and supporters of SETI also agree that the discovery of a signal would have important meaning in the assumptions about our place as humans in the universe (Heidmann 220).

Whether we are alone, or whether we have company among us in the universe, is a mind-boggling question that still remains to be left unanswered. Through research and scientific study, we one day may be able to determine the answer. Or perhaps we will never know. It is the fear of the unknown that drives many of the researches onward into the discovery of extraterrestrial intelligence, and hopefully one day, all this hard work will pay off!

1. Heidmann, Jean. Extraterrestrial Intelligence. New York: Cambridge University Press, 1992.

2. Jakosky, Bruce. The Search for Life on Other Planets. New York: Cambridge University Press, 1998.

3. Kahney, Leander. “A Search for Intelligent Searchers.” Wired News (1999). 29 January 2000 \*http://www.nitehawk.com/rasmit/\*.

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6. “History of SETI.” SETI Institute. 1999. SETI Institute. 29 January 2000 http://www.seti.org/general/history.html.

7. “The Optical SETI Resource for Planet Earth.” The Columbus Optical SETI Observatory. 1999. Columbus Observatory. 27 January 2000 http://www.coseti.org/.

8. Ward, Peter. Interview with Lori Stokes. The Debate Over Life Beyond Earth. MSNBC. 10 Feb. 2000.