

## LIFE BEYOND –ASTROBIOLOGY IN PRISONS FOR SCIENCE EDUCATION AND SOCIAL REFORM

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**Introduction:** Astrobiology contains within it civilization-level questions such as: What is the future of humanity on Earth? Can we successfully explore and settle other planets? As such, it offers an educational framework for both teaching basic science and for engaging individuals in questions about how society can confront its biggest challenges and opportunities.

*Life Beyond* is a collaboration between the UK Centre for Astrobiology and the Scottish Prison Service (SPS) to take astrobiology into the prison environment. It has several objectives linked to improving prison education [1]:

- Enrich the lives of the incarcerated and disenfranchised by providing them with an exciting opportunity to contemplate the human future.
- Improve general science education in prisons.
- By engaging the prison population in civilization-level challenges, provide a basis for changing personal perspectives and thus use astrobiology as an instrument of social reform.



**Figure 1.** *Life Beyond*. A program to use astrobiology as an instrument of science education and social reform. One of the locations of the *Life Beyond* program is shown – HMP Shotts, an all-male high security prison in Scotland.

**Methods:** The program was begun with visits to four prisons in Scotland: HMP (Her Majesty’s Prison) Shotts, Edinburgh, Glenochil and Lowmoss. Each two and a half hour visit consisted of the following program:

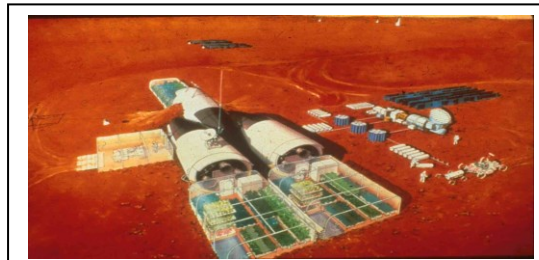
1. The first hour was an open question astrobiology lecture that covered the search for life in our Solar System, the possibility of the human settlement of Mars and how we can achieve these objectives whilst solving environmental problems on Earth. How do we prioritise such endeavors or do them in synergy?
2. A 20 minute break provided inmates with an opportunity to relax and talk to each other about what they have heard and meet the Edinburgh team.
3. A 60 minute session during which inmates led discussions. The audience was split into four or five groups. There were three 15 minute discussion sessions during which the groups discussed the following three topics: 1) Why would we want to go to Mars and what would it be like there?, 2) What would you need to take to survive there?, 3) How would you build a long-term

society on Mars? Between each discussion sessions the inmates were brought back into the larger group and a short plenary discussion allowed each group to summarise what they has discovered and what they thought.

The purpose of this third session was to get inmates to take the lead in discussions. During the session: How would you build a long-term society on Mars? they use their unique experience of the prison environment to think about issues of social cohesion and confinement to contemplate how best to build isolated confined settlements on other planets. These sessions even led to group discussions on how best to build extraterrestrial prisons.

**Conclusions and Future:** Following these early visits, our next plan is to implement long-term astrobiology courses (~3-4 weeks) in prisons. Alongside science education, art projects involving writing, poetry and other creative arts will be used to plan missions to Mars and engage as wide an audience of the inmates as possible.

Our immediate objective is to incorporate astrobiology into the prison curriculum across Scotland as an exciting and thought-provoking form of science education. This is being done in collaboration with SPS and



**Figure 2.** *Life Beyond* allows inmates to use their experiences to advance the human settlement of space.

their education and outreach groups.

One of our objectives of *Life Beyond* is to instill a sense of pride and confidence in inmates. We have a publishing agreement to write a book of essays and papers led by inmates on the human exploration of space. The prison environment provides inmates with a unique understanding of how an enclosed society functions. Prisons can essentially be seen as Mars analog habitats. Therefore, through *Life Beyond*, inmates get to directly contribute to ideas about how we should explore space, allowing them to turn their experience into one that will advance the establishment of a permanent human presence beyond the Earth.

[1] Vacca JS (2004) Educated prisoners are less likely to return to prison. *J Correctional Education* **55**, 297-305.