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Press Release

SPREAD OF LIFE THROUGH THE GALAXY

Armagh Observatory, 31 October 2003: Astronomers at Armagh Observatory and Cardiff University have independently discovered closely similar mechanisms by which micro-organisms may have spread throughout the Galaxy. Scientific papers on the topic by Professor Bill Napier at Armagh, and by Dr Max Wallis and Professor Chandra Wickramasinghe at Cardiff, will appear simultaneously in the Monthly Notices of the Royal Astronomical Society. The discovery of these new interstellar routes for transmission of micro-organisms strengthens the view that life did not originate on Earth but arrived from elsewhere.

It is known that boulders and other debris may be thrown from the Earth into interplanetary space as the result of collisions with asteroids or comets, and that micro-organisms within the boulders could survive the enormous accelerations involved. Life could easily have crossed the few astronomical units separating Mars and Earth in this way. To colonise the Galaxy, however, thousands of light years must be traversed. These enormous distances have always seemed an insurmountable barrier because of the lethal effects of cosmic radiation and the low probability that an ejected boulder would ever land on a planet in another star system.

However, Napier finds that collisions with interplanetary dust will quickly erode the ejected boulders to much smaller fragments and that these tiny, life-bearing fragments may be thrown out of the solar system by the pressure of sunlight in a few years. The solar system is therefore surrounded by an expanding `biosphere', fifteen or more light years across, of dormant microbes preserved inside rock fragments. In the course of Earth history there have been a few dozen close encounters with star-forming nebulae, during which microbes will be injected directly into young planetary systems. A single microbe falling onto a receptive planetary surface could populate the planet within a year. If planets capable of sustaining life are 'sufficiently common in the Galaxy, Napier concludes that this mechanism could have populated over 10,000 million of them during the lifetime of our Galaxy.

Wallis and Wickramasinghe have identified another delivery route. They point out that fertile ejecta would, on impact, bury themselves in the radiation-shielded surface layers of frozen comets. A belt of such comets, the Edgeworth-Kuiper belt, lies beyond the planetary system. This belt gradually leaks comets into interstellar space, some of which will eventually reach proto-planetary discs and star-forming nebulae. There they are destroyed by sputtering, releasing the trapped micro-organisms and seeding the formative planetary systems.

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