



Cover illustration
by Jacey.

nature insight

Astrobiology

Commentators often bemoan what they see as the increasing tendency of research to be inward looking, self-serving and specialized. Happily, some things buck the trend. Astrobiology does this in dramatic fashion, and is the theme for the eclectic selection of review, progress and commentary that follows. Astrobiology is nothing less than the study of life in the Universe. It encompasses fields as diverse as geology, astronomy, evolutionary and developmental biology, human physiology and palaeontology.

A canvas so broad may lose its meaning — conversely, many researchers may be unaware that their narrow tasks could fall into the astrobiology net. To help define and explore the subject, a partnership between NASA and several universities has created the National Astrobiology Institute (see <http://nai.arc.nasa.gov>).

It would be easy to dismiss astrobiology as either a pointless fad or a new brand for goods long past their sell-by date (does anyone remember 'exobiology'?). But such condemnation misses the point. In an age of increased narrowness of research goals, it is invigorating to lift one's eyes to the stars and consider life in its broadest sense. One consequence of astrobiology will be to deepen our understanding of our own place in the Universe, our uniqueness and our potential.

On page 1080, Brian Aldiss suggests that astrobiology represents humanity's craving for otherness. Alone in the Universe, we demand others to share it, whether deities or aliens. Down to Earth, Euan Nisbet and Norm Sleep investigate the origin of life on page 1083. Did life originate on Earth, or elsewhere? As Lynn Rothschild and Rocco Mancinelli show on page 1092, life abounds even in the most uncongenial environments. "Normal is passé," is their slogan, "Extreme is chic." The human-centred prejudice for an oxygen-rich, desiccating environment is itself extreme, and could blind us to the possibility that life might be universally abundant. On page 1102, Sean B. Carroll considers what aspects of life on Earth are likely to be fundamental and thus shared with life elsewhere. He concludes that simple unicells might be common, but 'mega-organisms' rare. Undeterred, on page 1110 Tom Wilson considers the progress of SETI — the Search for Extraterrestrial Intelligence. But what of our own outward urges? On page 1115, Ronald J. White and Maurice Averner look at the medical problems posed by the exposure of humans to the space environment. Implicit in our search for life elsewhere is the assumption that life is very much 'as we know it'. On page 1119, Ian Stewart and Jack Cohen explode this idea and ask whether, if extraterrestrials exist, we would be able to recognize them as such.

As this collection of articles shows, many ventures labelled as astrobiology are quixotic, even romantic, perhaps some way from the usual stuff of science. Disagreement abounds, and answers to many astrobiological problems may never be found. But that there is no universal truth is true for all science: the stimulation is in the quest, not in the finding. How much more valid is that statement when the quest encompasses the spatial and temporal breadth of the cosmos?

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