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Science Focus

THE BIG QUESTIONS SPECIAL ISSUE

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Should we play with evolution?

Are we getting happier?

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Should we reach out to aliens?

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SHOULD WE LOOK FOR ALIENS?

Even if all we learn is that we're alone, the search is worth the risk, argues LORD MARTIN REES. **Besides which, anyone we do end up finding probably knows about us already**

Are we alone?" is probably the question astronomers get asked most often by the general public. The search for extraterrestrial intelligence is surely worthwhile, despite the heavy odds against success, because the stakes are so high. That's why we should welcome Breakthrough Listen – a 10-year commitment by Russian-Israeli investor Yuri Milner to buy time on some of the world's best radio telescopes and develop instruments to scan the sky in a more comprehensive and sustained fashion.

But even if the search succeeded (and few of us would bet more than 1 per cent on this), it's unlikely that the 'signal' from aliens would be a decodable message. It would more likely constitute a by-product (or even a malfunction) of some super-complex machine far beyond our comprehension that could trace its lineage back to alien organic beings on a planet whose evolution might have had a head start of a billion years (or required a billion years less) relative to that on Earth.

It makes sense to first focus searches on Earth-like planets orbiting long-lived stars. But science-fiction authors remind us that there are more exotic alternatives. In particular, the habit of referring to ET as an 'alien civilisation' may be too restrictive. A 'civilisation' connotes a society of individuals: in contrast, ET might be a single, integrated intelligence. Even if signals were being transmitted, we may not recognise them as artificial because we may not know how to decode them. A radio engineer familiar only with amplitude-modulation might have a hard time decoding modern wireless communications.

> **"Advanced aliens would already know that we're here and could be giving us special attention"**

WATCHING AND WAITING

I find it hard to share the worries some express about transmitting any signals that would reveal our presence: advanced aliens would know already that we're here and could be giving us special attention because we're clearly undergoing a transition from a technological civilisation of flesh-and-blood creatures to a complex near-immortal cyborg or robotic entity.

Perhaps the Galaxy already teems with advanced life and our descendants will 'plug in' to a galactic community as 'junior members'. On the other hand, Earth's intricate biosphere may be unique and the searches may fail. This would disappoint the searchers. But it would have an upside. Humans could then be less cosmically modest. The tiny planet we find ourselves on – this pale blue dot floating in space – could be the most important place in the entire cosmos. Either way, our cosmic habitat seems 'tuned' to be an abode for life. Even if we are alone in the Universe, we may not be the culmination of this 'drive' towards complexity and consciousness.

Finally, there are two familiar maxims that pertain to this quest. First 'extraordinary claims will require extraordinary evidence' and second 'absence of evidence isn't evidence of absence'. SF

ALAMY

There are potentially many places where life could be hiding in the Universe. But does any of it want to hear from us?