

No sign of alien life 'so far' on the mystery visitor from space, but we're still looking

18 December 2017, by Ray Norris



An artist's impression of Oumuamua, assuming it's a rock. Credit: ESO/M. Kornmesser, CC BY

The mystery object discovered earlier this year travelling through our solar system is showing no signs of any alien life, despite plenty of efforts to look and listen for a signal.

Perhaps it's ironic that the [object](#) should arrive in a year when we [celebrated the 100th anniversary](#) (on December 16) of the birth of science fiction author Arthur C Clarke.

One of his most popular novels, the award-winning [Rendezvous with Rama](#), describes the high-speed entry of a cylindrical object into the solar system. It's initially thought to be an asteroid but a subsequent exploration reveals it to be an alien spaceship.

Exploring 'Oumuamua

Astronomers named our solar system visitor 'Oumuamua, which is Hawaiian for "scout" or "messenger" as it was [first detected by the University of Hawaii's Pan-STARRS1 telescope](#).

From our distant exploration of 'Oumuamua we know it's a red-brown, cigar-shaped object, about 400 metres long, and is moving so fast that it must

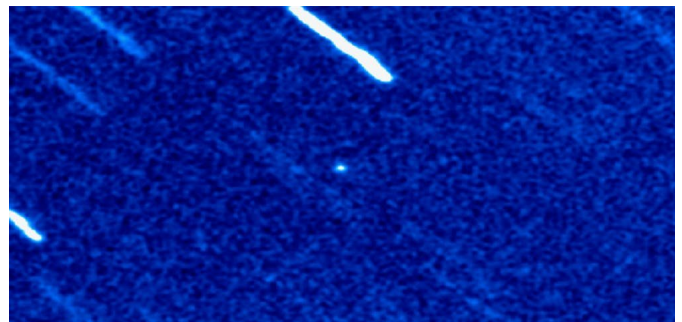
have started its journey in some distant stellar system.

But we still have no idea what it is.

We know it's not a comet, because it has no halo, and we know it's not a normal asteroid, because we've never seen one that is so elongated – about ten times longer than it is wide. And its speed (about 100,000km per hour) rules out an origin within the solar system or the [Oort cloud](#), where comets come from.

Aliens from another world?

As scientists, we have to keep an open mind. For example, could it be an alien spacecraft? This might seem the stuff of comic-book fiction. Yet we know there are other [Earth-like planets](#) out there, and some may host other civilisations. We must at least consider the possibility that it is an artificial object from one of these civilisations.



Tiny and very faint, this fast moving object (centre) was captured by astronomers as it passed through our solar system. Credit: Queen's University Belfast

That would also be consistent with the cigar shape. We know that the [best shape for a large interstellar spacecraft](#) is not like the fictional [Starship](#)

[Enterprise](#) of Star Trek fame, but more likely is elongated to minimise the damage from collisions with [interstellar dust](#).

The only problem with this idea is that this object is not gliding smoothly through our solar system, but is tumbling head over heels, about once every eight hours. So if it is an alien spacecraft, it's in trouble.

How can we tell what it is? The best way would be to get a good photo of it, but it is so far away that even the Hubble Space Telescope just sees a speck of reddish-brown light. And it is moving too fast to mount a space mission to get closer. Already it is starting to head out of the solar system.

Listening in for signals

If it is an alien spacecraft, perhaps we might detect some radio signals from it. And if it's in trouble, we might expect to hear a distress signal. Over the past few weeks, radio telescopes around the world have been straining to catch some whiff of radio emission.

The telescopes are well equipped for this job, as they are already engaged in the Search for Extraterrestrial Intelligence ([SETI](#)). The first serious SETI search was [made in 1960](#) by the radio astronomer [Frank Drake](#), and SETI has continued on the world's largest telescopes ever since.

The search continues methodically outwards from the Sun, with no detection so far, and yet SETI enthusiasts remain optimistic, pointing out that we have only searched a [tiny fraction](#) of the stars in our galaxy.

The first search for signals from 'Oumuamua was by the SETI Institute, using the [Allen Telescope Array](#). They hoped they might detect some evidence of an artificial transmission—perhaps a series of pulses, or a narrow-bandwidth signal. But nothing was found.

A much larger search was made by the Breakthrough Foundation, which uses the Australian radio telescope ("The Dish") operated by CSIRO at Parkes, New South Wales, and the Green Bank telescope in West Virginia, in the

United States.

Because 'Oumuamua is in the Northern sky, Green Bank can see it more easily than Parkes. Green Bank is still searching for signals from 'Oumuamua, but "so far" has [drawn a blank](#).

All attempts so far to detect a signal have been unsuccessful. The observations are so sensitive that even a mobile phone on board 'Oumuamua would have been easily detected.

But so far, nothing. As 'Oumuamua heads back out into interstellar space, the attempts will wind down and the telescopes will return to their normal duties.

So what is 'Oumuamua?

One thing we know is that 'Oumuamua isn't just a rock. It is the first interstellar object we've ever found in the solar system, and its elongated shape means it is totally unlike a normal asteroid.

So it probably isn't part of the natural process of planetary formation. The most likely explanation is that it is a giant shard of rock of unknown origin – perhaps debris from an interplanetary collision.

But we cannot discount the possibility that it really is a spacecraft – perhaps one that got into trouble a long time ago and its corpse continues to tumble for eternity through the vastness of interstellar space.

Searches for signals from it will continue until it leaves us for ever, and perhaps something may still turn up. But the chances are that it will forever be a mystery.

What has changed is that we now know that such interstellar interlopers exist. [One estimate](#) is that there could be 10,000 such objects passing through the solar system at any time.

If this is correct, then the hunt is on for more interstellar objects, and it won't be long before we find another. Then we will see a new field of study open up as astronomers seek to understand their properties and origin. Will we find debris from planetary collisions? Or will we eventually find space junk from other civilisations and begin our

own Rendezvous with Rama?

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