

Please answer to this survey before we start





A Rock that Doesn't Belong Here

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Nov 19th 2025 at HKU GLAM Collection Program

Object-Based Learning

"To see a world in
a grain of sand
And heaven in a
wild flower,
Hold infinity in
the palm of your
hand
And eternity in an
hour."

- William Blake

The story of Oumuamua

- Originally named 1I/2017 U1
- Already passed near-Sun point and leaving the solar system
- At a non-gravitational acceleration
- Weird shape, weird size, weird thickness, weird light,
- “What am I doing here, I don’t belong here”
- Named Oumuamua for “messenger from afar”

What is Oumuamua doing here?

- **Nitrogen ice theory**
- **Hydrogen ice theory**
- **Hydrogen-laden water ice theory**
- **When all knowledge is exhausted, new knowledge emerges**

The only way to make sense of 'Oumuamua's strange acceleration, without resorting to some sort of undetectable outgassing, is to assume that the object was propelled by solar radiation—essentially, photons bouncing off its surface. And the only way the object could be propelled by solar radiation is if it were extremely thin—no thicker than a millimetre—with a very low density and a comparatively large surface area. Such an object would function as a sail—one powered by light, rather than by wind. The natural world doesn't produce sails; people do. ...

Avi Loeb writes, "Oumuamua must have been designed, built, and launched by an extraterrestrial intelligence."

What is Oumuamua doing here?

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extraterrestrial

The First Sign of Intelligent Life Beyond Earth

AVI LOEB

3I/ATLAS



- **Another "wierdo" is passing by**
- **Scientists are better prepared this time**
- **Yet, still a lot we cannot fully explain**

- **3I/ATLAS on Nov 12th 2025**

Object-Based Learning

- **Inquiry and speculation are what serious scientists do every day.**
- **You should too.**

- **Scientists do not bear the burden of serving the ultimate answer.**
- **You shouldn't either.**

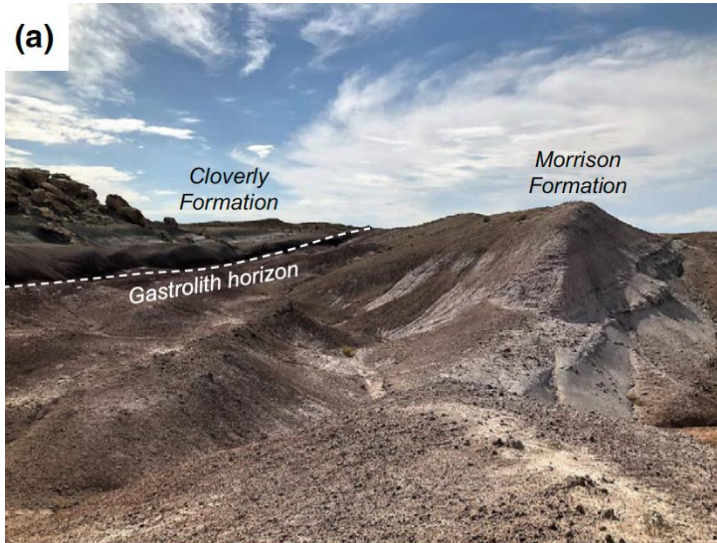
- **Amateur astronomers do not assume any authority holding the right answer.**
- **Your audience shouldn't either.**
And that is where the fun is at.



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A Rock that Doesn't Belong Here

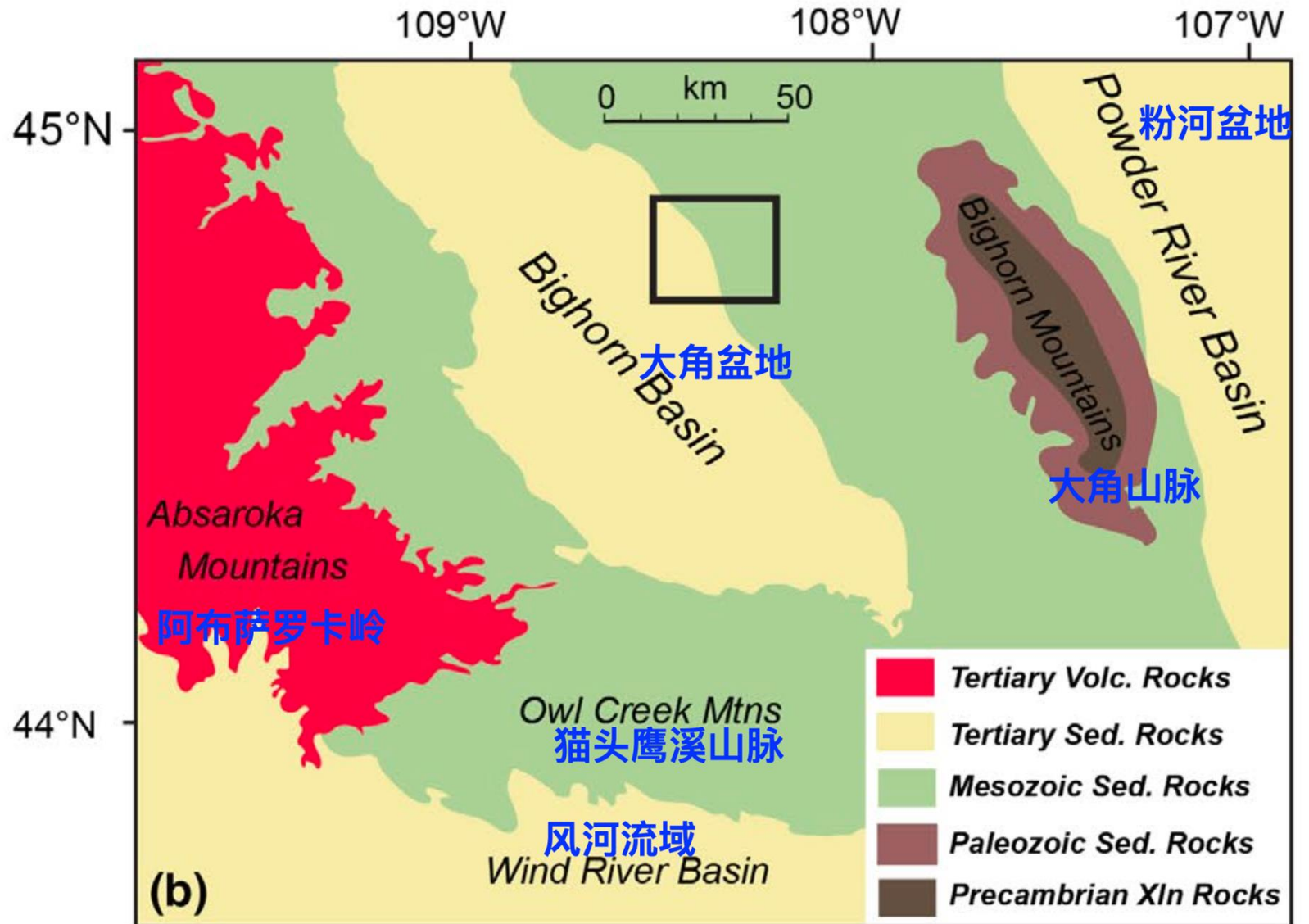


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© Malone et al./ Terra Nova





Where does
this rock
come from?



Where does this rock come from?

Round 1

Each group receives 3 fact cards

Generate as many hypotheses as possible
to explain “where this rock comes from”, on post-it notes

Where does this rock come from?

Round 1

Each group shares back one hypothesis
that the previous groups haven't raised

Take notes, as others may have seen fact cards you don't have
You can modify your hypotheses

Where does this rock come from?

Round 2

Each group receives all fact cards

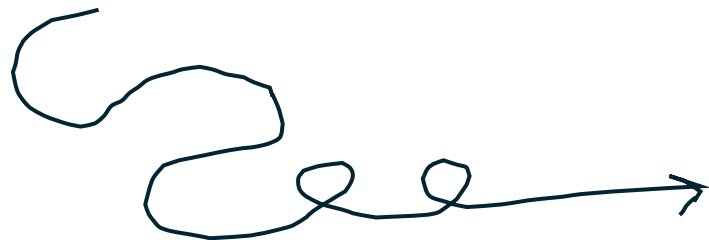
Generate new hypotheses or modify prior hypotheses

Where does this rock come from?

Make Your Own Round 3

Where does this rock come from?

Make Your Own Round 3



Dinosaur carrier (stomach stone) hypothesis



Carried and polished by human

- #3 Trade networks, trading obsidian.
- #6 Ritual stone, similar size and shape.

Used by human for cooking

- #12 The custom of hot stone cooking exists in many civilizations around the world.

Polished by human for ritual

- #19 Native tribes used highly polished, often spherical "Shaman" stones for shamanic rituals.

The action of rivers

- #5 Large east-west river system once existed on the North America.

The action of rivers

- #20 Pebbles become smooth due to the action of running water.
- #15 These stones are scattered in very fine-grained ancient mud, with no coarse sand or conglomerate layers.

Meteorites

- #2 The Bighorn Basin has been impacted by meteorites.

Meteorites

- #13 The analysis of the stones reveal that their composition is significantly inconsistent with the main composition of meteorites.

The action of glacier

- #4 The surfaces of these stones are similar to those of glacially transported rocks.

The action of glacier

- #10 There is no evidence of glacial coverage across the entire North American continent.

Other

Carried by Mammoth

- #7 Mammoth fossils were found near the Bighorn Basin.

Carried by Dinosaur

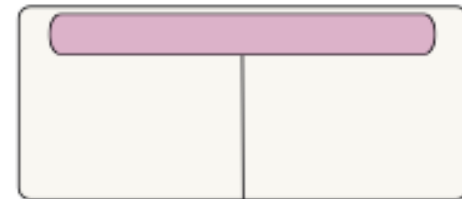
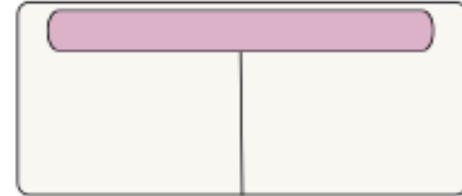
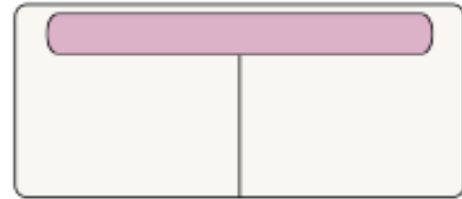
- #17 Dinosaur fossils were found near the Bighorn Basin.
- #18 Feed chickens small stones to aid their digestion. Stones in crops are smooth and rounded.

Round One

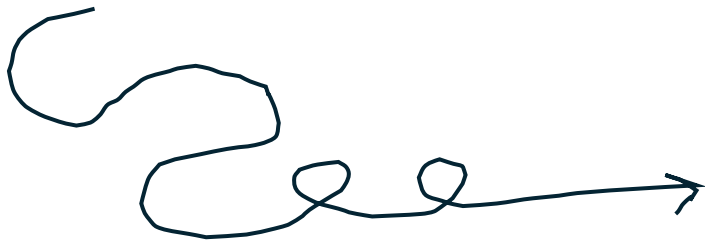
Round Two

Round Three

Theories of a Rock



What is new knowledge?

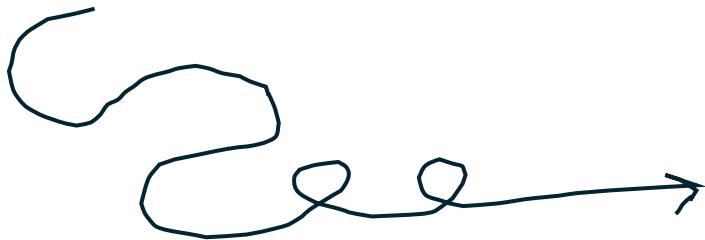


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What is new knowledge?



I Knew It!



Before this rock, paleontologists never had any direct evidence that dinosaurs do > 1000km **peregrination**

- 水流的作用，嗯，因为当时地图上确实有一条河流。然后之前也看过许多东西，就是通过河传下去的。

- ←

- (放弃河流作用的猜想时，你有什么感受吗?)

- “就觉得自己最开始有点不能特别接受，因为自己我当时想的还是比较铁定的。也没想到。”

- (那最后是怎么慢慢接受了呢)←

- 找到更有力的证据，然后就慢慢说服了自己哦。是因为有更有力的证据，觉得另外一个更有可能，所以慢慢的放弃掉了。“



Design the journey for your own audience

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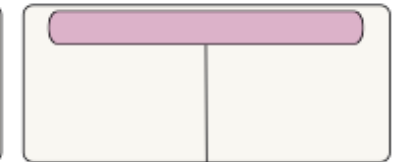
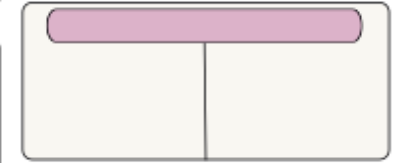
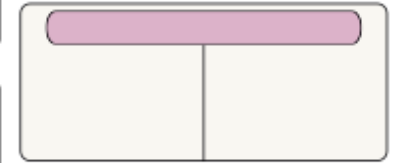
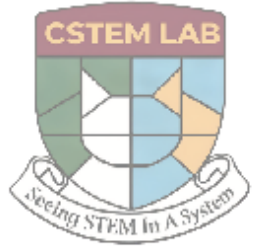
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Reminder: submit your proposal here



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Your feedback is important for us.

