A new theory suggests the Earth once had a small second moon that disappeared after a collision with its big sister. Researchers say in an article in the journal Nature that the slow speed of the collision may explain the build up of highlands on the rarely seen part of the Moon. Matt McGrath reports for the BBC:

This new theory builds on the idea that around four billion years ago the Earth was struck by a Mars-like planet, but instead of the smash producing enough debris for one moon, this paper argues there was enough for two.

This small second moon became stuck in a gravitational tug of war between the Earth and its much larger sibling. After millions of years in this position the new moon was drawn into a collision at a speed of less than three kilometres per second.

The scientists say this slow paced crash may have caused a build up of material and the formation of highlands on the Moon's far side.

For decades scientists have been trying to understand why the visible near side of the Moon is covered in craters while the far side has mountain ranges higher than 3,000 metres. The researchers hope that Nasa observational missions might prove this new theory within a year.

Matt McGrath, BBC News
## Vocabulary and definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>struck by</td>
<td>hit by</td>
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<tr>
<td>smash</td>
<td>violent collision</td>
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<tr>
<td>debris</td>
<td>rubble</td>
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<tr>
<td>paper</td>
<td>scientific essay</td>
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<tr>
<td>stuck</td>
<td>fixed</td>
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<tr>
<td>gravitational tug of war</td>
<td>pull in opposite directions by the force of gravity</td>
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<tr>
<td>sibling</td>
<td>brother or sister</td>
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<tr>
<td>slow paced</td>
<td>moving at low speed</td>
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<tr>
<td>far side</td>
<td>face of the Moon that can’t be seen from the Earth</td>
</tr>
<tr>
<td>craters</td>
<td>big holes on the surface</td>
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