

Moons

Humans or robots

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There are two ways of exploring planets, and they're not mutually exclusive. One is to explore planets with small and relatively cheap by space flight standards robotic spacecraft. And the other is to send human beings, with are vastly more ambitious missions. Although human missions to other planets are indeed very expensive, once humans get to another planet, we are very efficient explorers. To get a robot to recognise as important, you've kind of had to predict it, whereas a human being faced with something out of the ordinary has this ability to know intuitively that there's something that's worth investigating. And this makes humans very good at discovering the unexpected. What we've learned by comparing exploring the Moon with astronauts and comparing Mars with rovers is that even encumbered with space suits, humans are very more efficient at even doing basic things like collecting rocks and determining what rocks are made of.

The most long-distance travelled of these little robots on Mars is the Opportunity rover, which landed on Mars in January 2004. It's fantastic it's still active. It's been active now for nine years. In those nine years, its odometer has just clocked up 31 kilometres. In nine years, it's trundled the same distance on Mars as what the Apollo 17 astronauts travelled in three days. The comparison is even deeper than that. Spirit and Opportunity rovers on Mars are relatively cheap compared to Apollo, but one of the things that makes them cheap is they're left on Mars. So whereas the Apollo astronauts brought back all these rock samples, these little rovers on Mars have brought back nothing. So that's the ultimate argument. I think human beings are expensive to send to planetary bodies, but if you can do it, they're just much more efficient explorers.

But there has been a renaissance in exploring the Moon from lunar orbit. There is a space race aspect. I mean, the ultimate reason that China, and India, and Japan have chosen to send spacecraft to the Moon is because they want to demonstrate to the world that they can do it. It's a case where science hasn't really been the ultimate reason. On the other hand, it has opened up a lot of opportunities for science and for international cooperation because the Indians were able to prove that they could send a spacecraft to the Moon on their own with their own rocket. That's a tremendous achievement. But having done that, by providing this platform that other countries and space agencies could put instruments on, did actually make that a very international and a very scientifically worthwhile space mission.

The scientific arguments for sending people back to the Moon are very strong. I'd like to think it would happen within the next twenty years. I'm doubtful that governments alone will be able to justify this, but I think the thing that's changed and is changing over the coming decades is we'll see increasing interest in space exploration not only by governments but by various corporate private entities. The Richard Bransons of this world and others may start to develop a space infrastructure with a profit motive in mind, whether we think that's good, or bad, or indifferent. But that would be their motivation. But if it enables them to build up an infrastructure, a transport infrastructure, then that will then be available for scientists to essentially become customers of. And so I think maybe things will evolve more along those lines.