



Transcript



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| STATION | 702 ABC Sydney |
| PROGRAM | James Valentine |
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| SUMMARY | Discussion about NASA's Mars Exploration Rover Mission. Interview with Steve Squyres, National Aeronautics and Space Administration, USA. |

JAMES VALENTINE – PRESENTER:

At IMAX theatre you'll be able to see Roving Mars very, very shortly, which brings together the expedition, the planning of the whole thing, the sending of the craft to Mars. This is the two little rovers that have been wandering around there far longer than anyone expected. Brings that story together with the pictures that these craft have sent back.

Steve Squyres is chief scientist for the NASA Mars Rove [sic] mission, and he joins us on the line.

Steve, how are you?

STEVE SQUYRES – NASA:

Good. How are you?

VALENTINE:

Good, good. Do you get a lot of criticism of it?

SQUYRES:

Excuse me?

VALENTINE:

Do you get a lot of criticism of the Rover expeditions?

SQUYRES:

No.

VALENTINE:

No. People in general think, terrific?

SQUYRES:

We've had a lot of support, an awful lot of support.

VALENTINE:

Yes. But I mean did ... how do you answer that criticism, when it comes up, that this is, why are we doing this, there's stuff to be done down here ...

SQUYRES:

Oh that's a ... I mean, that's a very valid question. It's an important question for us to be able to answer.

The reason that we're doing it is to try to answer some very basic questions like, are we alone in the universe, and how does life come to be.



You know, this mission is not about spin-offs. It's not about Teflon; it's not about Tang; it's not about, you know, trying to pave the potholes; or putting roofs over people's heads; or putting schoolbooks into the schools. It's about putting knowledge into the schoolbooks.

VALENTINE:

Yeah.

SQUYRES:

And if you think that answering those basic questions and furthering human knowledge is worthwhile, then it's worth doing. And if you don't, you don't. I happen to think it is.

VALENTINE:

Yeah, I'm with you. I always ... was it you that jumped up and down and said, we've just done a three hundred million mile hole in one?

SQUYRES:

That was me, yeah (laughs).

VALENTINE:

(Laughs) It's one of the great ... it's a terrific quote.

SQUYRES:

It was. It was a remarkable thing. I mean, we ... you know, we flew three hundred million miles and we landed in this perfect little crater. It was fabulous.

VALENTINE:

You're still excited, aren't you?

SQUYRES:

Yeah, it was great ...

VALENTINE:

(Laughs)

SQUYRES:

Still remember it like it was yesterday.

VALENTINE:

It's ... but it is a fantastic achievement. And the fact that these things – these remote control cars – are still running around, is beyond your expectation.

SQUYRES:

We ... you know, I thought they might last a hundred and twenty days, a hundred and fifty days. You know, we said they would last for ninety days at least. I thought maybe if everything went our way, it would last for, you know, a hundred and fifty days, a hundred and eighty days, maybe something like that. Today is day seven hundred and ninety-two.

VALENTINE:

Wow. Isn't that fantastic.

SQUYRES:

Yeah.





VALENTINE:

Why have they kept going then? And can you get that into a Chrysler? (Laughs)

SQUYRES:

Why have they kept going?

VALENTINE:

Why are they still going?

SQUYRES:

Well, it's been a combination of things. Probably it's been that we built good hardware. I mean, we built really, really good stuff. And we tested the living daylights out of it and it's still working.

The other thing is we've had some good luck. We've been very lucky with the weather. You know, Mars is a dusty place and we thought that dust would (indistinct) the solar panels that provide the power, and sooner or later we wouldn't have enough power to survive. And we've had some lucky gusts of wind that have cleaned the things off. So they're still going.

VALENTINE:

See, I suppose, usually the things you don't know result in bad luck which destroys the project, doesn't it. This is just work in reverse.

SQUYRES:

It can go both ways. We've had our share of bad luck too. It seemed like we had most of our bad luck before we launched. But since we got to Mars, Mars has been pretty good to us.

VALENTINE:

What is the knowledge that's in the schoolbook now then? What do we now know about Mars because of this project, that we didn't know before?

SQUYRES:

I think the most important thing is that we've learned that long ago Mars was a much more habitable world. It was a much ... place that was much more suitable for life. Mars today is cold and dry and desolate but in the distant past it would warmer and wetter and much more earth-like.

VALENTINE:

Right. How distant?

SQUYRES:

You know, a long time ago, probably three or four billion years, so it's been cold and dry and desolate for a long time.

VALENTINE:

So three or four billion years?

SQUYRES:

Yeah.

VALENTINE:

So the earth is about four billion, isn't it?





SQUYRES:

Earth is about four and a half billion years old. What that means though ... if you ask yourself when did life first emerge on earth? It was about four billion years ago. Life showed up early on earth. And, at the same time that life was emerging here on earth, Mars was a warm and wet place. So the question arises, could it have happened there as well?

VALENTINE:

Right. Was it happening simultaneously?

SQUYRES:

Could it have happened; yeah, we don't know.

VALENTINE:

Do we know why? It's too much to try and speculate as to why Mars is no longer a warm, wet place?

SQUYRES:

Well, that's a hard one, because the evidence of the .. what caused the climate change is hard to find. So, no, I don't think we have a good answer for that one, but it certainly has changed.

VALENTINE:

The Martians built an empire, had a lot of cars ...

SQUYRES:

(Laughs)

VALENTINE:

... did the greenhouse gas thing.

SQUYRES:

Yep, global warming, greenhouse gases ...

VALENTINE:

Wiped it out ...

SQUYRES:

... have no idea actually.

VALENTINE:

Will we ever learn (laughs)?

SQUYRES:

I hope so, I hope so. I ... you know, we ... there's It's a big planet, we've only seen some very small parts of it so far up and down on the surface, and we've still got an awful lot to learn.

VALENTINE:

Mmm. You said one of the things we want to know is, does this suggest life elsewhere? We've got ice on Mars, we've got sort of reports of geysers of water coming out of moons of ... is it Jupiter ...

SQUYRES:

Yep.





VALENTINE:

... erupting on. It's still tantalizingly close but no-one's got the bit of bacteria, yet have they?

SQUYRES:

No, there's no proof that life has ever existed anywhere in the solar system except Earth. But we keep getting tantalising clues that tell us that we ought to keep exploring.

VALENTINE:

Yeah. In Roving Mars, you know the IMAX movie, what do we see? Do we see all of the sort of, the pictures, the great pictures that have been sent back?

SQUYRES:

Yeah, it's really a fantastic film. I just saw it for the first time a month or so ago. And the filmmakers have done a wonderful job of kind of capturing both the process of building the Rovers and launching them and landing them, and all the tension that came with that, plus just the beauty of the Martian surface. The IMAX format lends itself wonderfully to displaying these spectacular panoramic images of the Martian surface that we've taken.

VALENTINE:

Are these actual images or a kind of representation of ... based on data that you receive?

SQUYRES:

You see two different things in the film. A lot of the film, once we get to Mars, is the actual images exactly as we got them back on earth. But then are also scenes that are very, very accurate recreations where the filmmakers have taken our data and then they've also taken a very, very detailed photo realistic model of the Rover and digitally put the Rover in the scenes so you can actually see what the rover did.

There's ... you know, the way we landed is by using airbags and they kind of bounce like a beach ball. And there's a wonderful scene where you actually see the Rover landing and you see the airbags bouncing across the surface.

We had gyroscopes inside our vehicle recording every single bounce as it happened, and the filmmakers actually used that data to show how the vehicle bounced on the surface. So when you see those bounces in the film, bounce for bounce it's exactly what the vehicle did. It's very accurate.

VALENTINE:

Mmm. We've been talking to the man who had the driver in the hand for the three hundred million mile hole in one, Steve Squyres who's the chief scientist at NASA for the rov... Mars Rover expedition. Thank you so much for joining us Steve.

SQUYRES:

Glad to be here.

VALENTINE:

All the best on the work ahead. Let's hope they keep putting around up there. Roving Mars is now on at IMAX theatres in Sydney ... at the IMAX theatre in Sydney, and a terrific opportunity to get up close to Mars.

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