

Mars and the Mind of Man

A free-wheeling discussion of what we do and don't know about Mars.

It was Bruce Murray's idea. On November 12, the day before the Mariner 9 spacecraft went into orbit around Mars, he rounded up a blue-ribbon panel of experts to join him in a symposium in Ramo Auditorium on "Mars and the Mind of Man." The panelists included two science fiction writers—Ray Bradbury (*The Martian Chronicles*) and Arthur

Clarke (2001)—and two scientists—Carl Sagan, visiting associate in planetary science from Cornell University, and Murray himself, professor of planetary science at Caltech. (Sagan and Murray are also co-investigators on the television team for the Mariner 9 mission.) Walter Sullivan, science editor of *The New York Times*, served as moderator.

Some highlights from the free-wheeling discussion of what we do and don't know about Mars, and what we might now find out about it:

Sullivan:

We are on the eve of turning another page in the history of man's understanding of the planetary system in which we reside. At least I hope we're going to turn another page late tomorrow afternoon. Some of our friends here on the platform have as strong and as authoritative views about what we're going to find on that page as anybody in the world. But it is very appropriate that we also have with us two fiction writers who are very scientific as well as fictional.

Sagan:

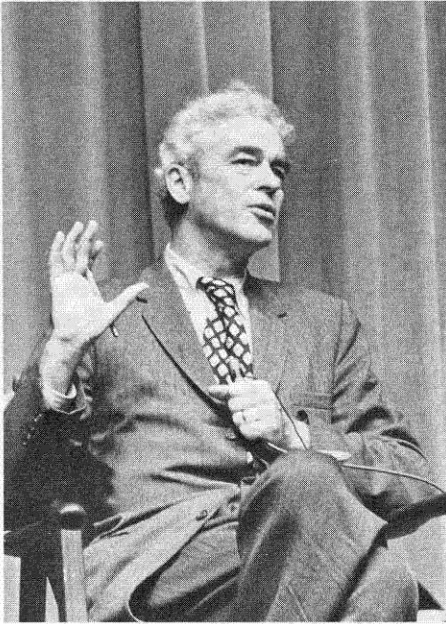
I first became aware that Mars was a place of some interest by reading stories by Edgar Rice Burroughs, who also is known for his Tarzan invention. Burroughs invented a gentleman adventurer from Virginia named John Carter who was able to transport himself to the planet Mars by standing in an open field and sort of spreading his arms out and wishing. At least that's as close as I could get to the method. And at an early age—whatever I was—8 or 9, I tried very hard to put that to the experimental test—and it did not work, perhaps not entirely to my surprise, but I thought there was always a chance, you know . . .

. . . The kind of observational basis for the idea of Mars as a dying world was provided first by an Italian astronomer named Schiaparelli, but it was publicized

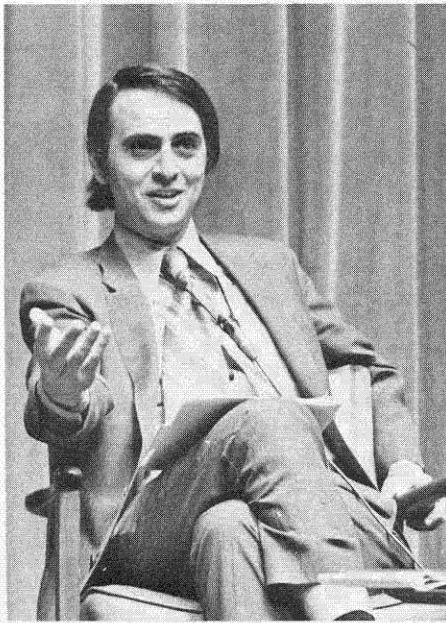


Five experts discuss their own ideas and some historic conceptions about Earth's neighboring planet Mars.

"I was hoping we would see a lot of Martians with huge signs saying 'Bradbury was right.'"



Walter Sullivan



Carl Sagan

consummately by an American Brahmin from Boston, a diplomat to Korea turned astronomer, named Percival Lowell, who was the brother of the president of Harvard and of Amy Lowell, the poetess. And the kind of observations involved meant going to a place where the atmosphere was reasonably steady (where the "seeing" was good) and then, by eyeball astronomy, looking through the telescope and drawing pictures of what you saw.

Lowell was surely one of the worst cartographers who ever sat down at the telescope, and the kind of Mars that he drew was of little polygonal blocks connected by a multitude of straight lines. These straight lines had first been discovered in 1877 by Schiaparelli and he called them "canali," which in Italian means something like channels or grooves, but it got translated as canals and you can see the whole hypothesis right there in the translation. Somebody saw canals on Mars. Well, what does that mean? Well, canal—everybody knows what that is. How do you get a canal? Somebody builds it. Well, then—there are builders of canals on Mars.

Bradbury:

When I wrote *The Martian Chronicles*, I knew there were echoes of Burroughs all through the book—except when I was borrowing the influence of the moralist Jules Verne. I'm a bit of a moralist myself, though I hope not too pontifical, because I like to have a lot of fun with my writing. I like to get my ideas down at the top of my enthusiasm. But right now it looks like we are at a moment in history when, with the Greeks and the Romans, we science fiction authors must retire to the wings and become a part of mythology. I was, in fact, rather pleasantly surprised recently to discover that I was being taught as mythology at one school already, and I like that—because what I am doing is writing fairy stories. *The Martian Chronicles* is mythology and fairy stories



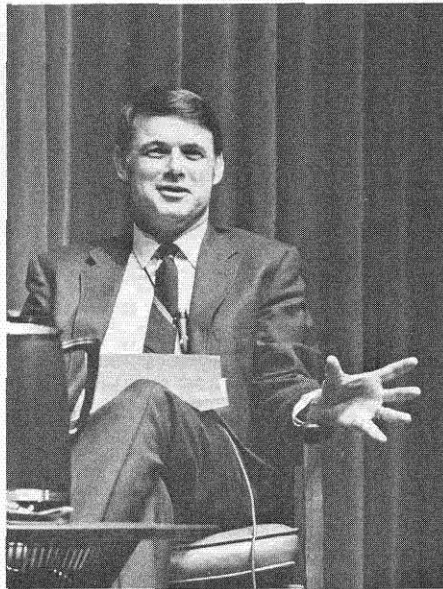
Ray Bradbury

"Whether there is life or not on Mars now, there will be by the end of this century."

and very much akin to a Bible too. And I was hoping that during the last few days as we got closer to Mars and the dust cleared we could see a lot of Martians standing there with huge signs saying "Bradbury was right."

Murray:

Mars has so grabbed hold of man's emotions and thoughts that it has actually distorted scientific opinion about it. So it isn't just the popular mind that has been misled, but the scientific mind as well. And the reason this has happened is that man as a human species has been guilty of wishful thinking. We *want* it to be like the Earth. This is a very deep-seated desire, to find another place where we can make another start, that could be somehow habitable or maybe we could make it habitable. And it has been very hard to face up to the facts that have emerged and have been emerging for some time—that it really isn't that way; it's just wishful thinking. My point here is that it hasn't just been the popular science writers who have done it; the people who have really fallen on this have been the scientists themselves who misinterpret their observations. This has been going on for a long time. There has been a predilection, when a new observation came in, to try to interpret it in terms of plant life on the planet, rather than an unbiased view. And there are many examples of this—one as recent as 1969, in the Mariner flybys. There was a misinterpretation of one of the instruments on board initially because the person really wanted to believe that he found something that indicated that there was life on Mars. In fact, he had found something that was extremely important, that indicated that the Martian polar caps were not just CO₂ generally, but absolutely pure dry CO₂ with no moisture at all upon them. He had made a very important discovery, but he had initially misread it because he was so hopeful of seeing something else. So this is not just a popular thing. It affects



Bruce Murray



Arthur Clarke

science very deeply, I think, and I'm not sure we're out of it yet. My own personal view is that we are all such captives of Edgar Rice Burroughs and Percival Lowell that the observations are going to have to beat us over the head and tell us the answer in spite of ourselves. Mariner 9 is going to return 5,000 pictures and it will be a step forward in that regard. It will be a stick to beat us with and tell us the answer.

Clarke:

We are in a very interesting historic moment of time now in regard to Mars. I'm not going to make any definite predictions because it would be very foolish to go out on a limb at this moment in time, but whatever happens, whatever discoveries are made in the next few days or weeks or months, the frontier of our knowledge is moving outward inevitably. It has embraced the moon. We still have a great deal to learn about the moon and there will be many surprises, I'm sure. But the frontier is moving out and there is going to be a change of viewpoint. We're discovering, and this is a big surprise, that the moon, and I believe Mars, and I believe parts of Mercury and space itself is essentially a benign environment to our technology—not necessarily to organic life. Certainly it is benign as compared with the Antarctic or the oceanic abyss where we have already been. This is an idea which the public still hasn't got yet, but it is a fact. I think the biological frontier may very well move past Mars out to Jupiter, which I think is where the action is. Carl, you've gone on record as saying that Jupiter may be a more hospitable home for at least many forms of life than any other place, including Earth itself, and though this is an arguable point it would certainly be very exciting if it turns out to be true.

I will end by making one prediction. Whether there is life or not on Mars now, there will be by the end of this century.