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Rob Hardy:'Geographies of Mars'

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While Space Shuttle flights have become so commonplace we haven't paid much attention to them in a while, and few people keep track of the doings of the International Space Station, when a robot has gotten to Mars and has started sending back signals, millions of people around the world wanted to watch the robot and see what it was finding. Perhaps this because we are eventually going to get to Mars ourselves someday, or perhaps it simply reflects inherent interest in the one planet out of our universe which we know to be most similar to ourselves.

Around the turn of the last century, however, there was huge popular enthusiasm for Mars, because some astronomers were seriously putting forward the idea that intelligent beings populated the planet. Traditionally this scientific mistake has been put down to optical illusions and wishful seeing on the part of men at the small ends of telescopes, but in "Geographies of Mars: Seeing and Knowing the Red Planet" (University of Chicago Press), geographer K. Maria D. Lane shows that the story is larger than just what was being seen (or imagined) when telescopes were pointed at Mars.

Scientific authority, the persuasiveness of maps, the depiction of the scientist as manly hero, the rugged landscapes where the telescopes were located, and the geography and politics of Earth all played into the Mars sensation. Lane's history covers a couple of decades around 1900, and is full of surprises and sharp insights.

Lane looks at these years and finds there was a "functionally dominant (if not universal) understanding of Martian geography as arid, inhabited, and irrigated." The best way of describing what was being seen by telescope on Mars was to make analogies with our own planet, and this was done in many ways. Percival Lowell was the most famous interpreter of inhabited Mars, and when he saw canals (canals which most academic and professional astronomers could not see), he said they probably operated like the canal at Suez, and he contrasted their manufactured straightness with the windings of the Mississippi River.

Lowell was not the only one making such analogies; the eminent English astronomer Sir Norman Lockyer said of a certain Martian coastline that it "... reminds one of the Scandinavian peninsula, and the included Baltic Sea." It was easy to see, for those who paid attention to the analogies, that Mars was very much like Earth. When the features were plotted on maps, they became even more familiar. The original Italian maps of Mars had "canale" marked on them, and it is often said that the canal craze came from the easy mistranslation of the word to "canal" rather than the more appropriate and natural "channel." Lane shows, though, that the cartographic images were what carried the message of the canals, not any mistranslation. Before cameras could be attached to telescopes, astronomers sketched what they saw. When they started putting the sketches onto Mercator projections, though (this was first done in 1869), the maps conveyed scientific accuracy; they looked like objective representations of reality, and so they were taken as such. The maps also got labeled with bays, oceans, and continents, and the features were named. That different maps from different observers could not be reconciled was an obstacle that was overcome as people favored the maps of the Italian astronomer Giovanni Schiaparelli, the one who put "canale" on its dark lines.

The style of Schiaparelli's maps became standard, with dark lines like spider webs connecting focal points. It was the style used by Lowell, who throughout his career put out new maps, some with new canals on them; the Martians were always busy. The artificial appearance of the canals, Lowell taught, was evidence that they were made by intelligent beings.

He went on to describe the planetary situation that would have made such huge engineering projects necessary. The Martians were struggling to stay alive on a dying planet; not only was this a tragic vision with which people sympathized, but Lane shows that it was consistent with thinking about regions of the Earth and with science connected with empire and colonial administration. Lowell took to the popular press and to the podium to promulgate his maps and his explanations. His views were enormously popular, but were embarrassing for most professional astronomers. Astronomers were happy to have people interested in Mars and in telescope viewings, and eventually they tried publishing in the popular press to give a more realistic view of Martian geography. This became easier when photographing the views from a telescope became more practical, but even at the start of such photography, Lowell was insisting that the photos confirmed his maps.

Even the co-founder of evolution, Alfred Russel Wallace, debated with Lowell, maintaining that just as on Earth, a lack of

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water would be more likely to cause conflict or exploitation, not benevolence and monumental civil engineering. Nonetheless, the idea that there were Martian superior beings lasted long after the canals were debunked, and haven't gone away; there are still those who say the "Face on Mars" represents a gigantic surface engineering project.

Lane's chapters regarding the placement of telescopes during the time are especially interesting. It was good to get a big telescope, away from the city and up into the thin air for better views. This was all granted by all astronomers, although sometimes compromises in telescope placement had to be made. There began a tradition of putting the telescopes on distant mountains, and such placement could be scientifically defended.

There would have been nothing wrong, however, about putting the instrument on an elevated plain, and such placement might even avoid the weather shocks that afflict mountains. Indeed, a plateau was where Lowell's scope (used just in viewing Mars) was placed, although he could see mountains from the site and he used photographs of mountains when describing it. Other astronomers did the same sort thing, emphasizing how distant and inaccessible their telescopes were, as if there were a particular scientific manliness in their work at such remove. Not only did the mountains serve as sites for the telescopes, but also as analogies for the Martian surface. Mountains were cold and had thin air, but they still had living things; why should not comparable areas of Mars?

Lane's book is surprising and often funny, as befits a recounting of this sort of wrongheadedness. It is, however, a serious account, well-researched, and well-illustrated, about how well-meaning people got Martian geography wrong. It explains how difficult it was for serious astronomers to correct the impression given by popularizers who had an attractive if erroneous picture of Mars (and of how science was done). As strange as the real Martian landscapes have turned out to be, to see them rightly we had to overcome the many sorts of geographic blinkers Lane has recounted.

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