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Millions of Miles to Mars: A Journey to the Red Planet

By Joseph W. Kelch

Illus. by Connell Patrick Byrne

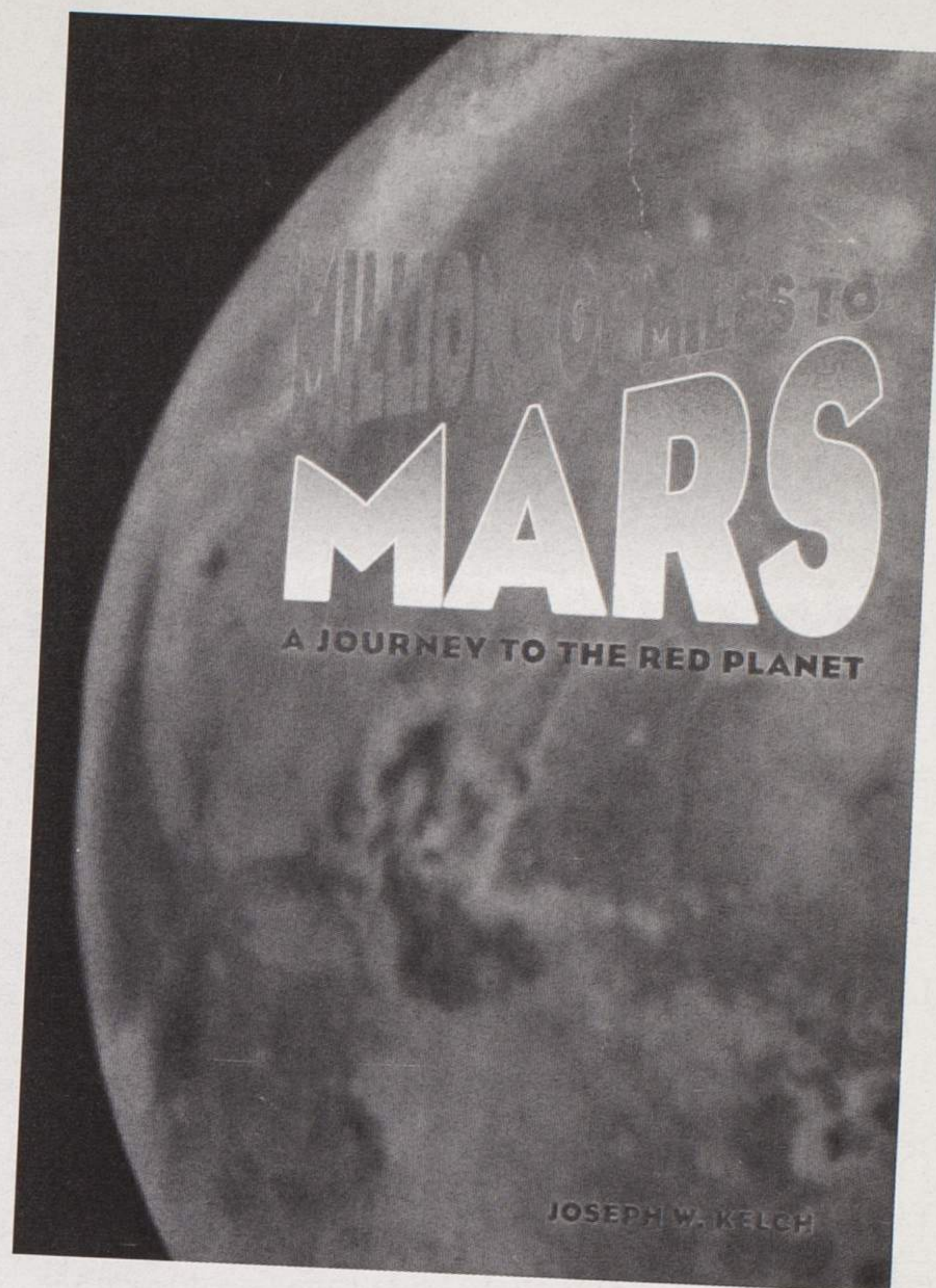
What would it be like to go to Mars? What would getting there involve? How long would the trip take? Can we do it? These are just a few of the intriguing questions

addressed in *Millions of Miles to Mars*. Taking readers on an imaginary journey to the red planet, it traces the history of our fascination with Mars and describes in detail the complexity of a Martian voyage. Throughout, photographs taken by Mariner and Viking spacecraft combine with drawn art to show what Mars really looks like and what travelers might find when they get there. Concluding with an arousing—and

convincing—argument for mounting an expedition to Mars, this will excite a whole new generation of space enthusiasts!

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The circular crater on the volcano Pavonis Mons looks very different from the craters on top of Olympus Mons and Ascraeus Mons. Dust storms are a frequent feature of Mars, and can, at times, cover the entire planet.

Earthquakes occur when motion of the molten rock beneath the surface causes the crust above to slip. These most often occur on Earth where great floating plates of crust are in contact with each other, with the two plates moving in different directions. These plates carry continents across the Earth. Over millions of years the continents shift position. This is known as **continental drift**.

Scientists would be very interested to know if this ever happened on Mars or may even still be occurring today. They will set up seismometers, devices that can detect Marsquakes. Some evidence, such as the massive size of some of the volcanoes, indicates that the plates probably have not shifted much. This would allow the surface to remain stable over a single hot spot for a long time and build up these giant volcanoes. Studies of Marsquakes and other geologic activity will help solve the mystery.

The weather on Mars may also affect the landing. When Mariner 9 arrived on Mars in 1971, a giant, planet-covering dust storm was in progress. These dust storms occur every few years on Mars and would



The huge size of Valles Marineris is best appreciated when you compare it to the size of something here on Earth, such as the Grand Canyon.

certainly present a hazard to a landing spacecraft. Should a large dust storm be underway on Mars when the spacecraft arrives, it may be necessary to postpone a landing. If the spacecraft needs to begin its return to Earth within a couple of months, this could be a problem—especially if the fuel for the return flight is on the surface in a fuel factory launched ahead.

These dust storms seem to be associated with the change of seasons on Mars. The arrival of spring in the southern hemisphere causes evaporation of frozen carbon dioxide (dry ice) producing powerful winds that blow toward the north. These winds carry the loose dust covering much of Mars high into the atmosphere. The dust remains suspended there for long periods of time. In fact, the Martian sky appears orange because of all the dust found there.

The first mission to Mars will be carefully timed to avoid this season. Still, smaller dust storms can arise at any time. Several landing sites may have to be chosen if dust is a problem at the ideal location. It will still have to be within reach of the fuel factory.

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MILLIONS OF MILES TO MARS

WHERE WILL WE LAND?

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Science Grades 4 &
up—Nonfiction

Julian Messner