A Martian Dream

In 1969, the spacecraft Apollo 11 landed humans on the moon for the very first time in history.

1)그 후에 화성을 가는데 까지 진지하게 고려하는데 세계는 반세기를 기다려야 했다.

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The delay has been because Mars is simply too far from Earth, and we have had only limited knowledge about it.

2)지난 수십년동안 과학과 기술이 발달함에 따라 인간의 화성 착륙을 수반하는 프로젝트들이 시작되었다.

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3)많은 선진국들이 다양한 형태로 이 프로젝트에 참여하면서 과학자들은 진전을 보이고 있지만 여전히 큰 도전이 남아 있다.

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Going to Mars Because Mars is more than 100 times farther than the moon from Earth, reaching Mars requires serious hardware including a powerful rocket equipped with extremely fast computers. For this purpose, a new generation of spacecraft is being designed and built at the National Aeronautics and Space Agency (NASA) of the United States.

4)그러나 강력한 로켓으로도 가는데만 6개월이 걸리기 때문에 화성 왕복은 어려울 것이다.

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Even when the two planets are closest in their orbits, a round trip would take at least one year. Today's rockets and spacecraft cannot hold enough fuel for such an extended journey.

5)과학자들이 이 문제를 해결하기 위해서 노력하는 동안 유럽의 한 회사는 우주 비행사 4명의 편도 화성여행으로 2년마다 추가 팀원을 합류시켜 식민지를 건설한다는 계획을 내놓았다.

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The world will have to wait several years to see if the plan works.

Scientists are trying to find effective ways to get water from the ice. The next thing humans require is food. To produce food on Mars, we need special farming technologies.

6)우리는 ISS에서 시험하고 있는 특수한 재배 시설을 이용할 수 있다.

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Of course, farming in space is not easy. Plants can be grown in space, but they require very careful management of gases, water, and dirt. On Mars, the challenge will be more complex than

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on the ISS.

7)얼음으로 갇혀 있는 물을 추출해야 할 뿐만 아니라 척박한 토양과 중력 또한 해결해야 할 문제이다.

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Therefore, success in farming on Mars might take decades or even centuries. Until then, food could be printed by three-dimensional (3D) food printers. With proteins and carbohydrates from various sources such as insects and leaves, 3D food printers can print pizzas and bread, among other foods. A scientist at NASA predicts that there will be 25 to 50 basic food items. "We're not planning for food at fancy restaurants, but just healthy and nutritious meals," he says.

8)산소 문제는 산소를 배출해내는 식물을 활용할 수 있고 인간의 배설물을 재활용한 거름을 사용하여 식물에 영양분을 공급할 수 있다.

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9)충분한 산소를 배출할 만큼 충분한 식물을 기르기까지 NASA는 화성의 대기에 존재하는 이산화탄소를 산소로 변환하는 특수 기계를 활용할 것이다.

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Protecting Ourselves

Another important issue involved in going to and living on Mars is our health. Our bodies work differently in space. On Earth, gravity drags bodily fluids downwards, but in space this does not happen.

10)우주여행 도중과 화성에서는 약한 중력 또는 무중력을 보완하기 위해서 심장은 더 열심히 움직여야 한다.

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In addition, weightlessness in space weakens bones and muscles. Astronauts on the ISS do a lot of exercise to avoid these problems, with additional help from drugs and artificial gravity from a spinning device. Similar measures will be used on Mars. One great threat to our body in space and on Mars is cosmic radiation.

11)지구의 대기와 자기장의 보호에서 벗어나면 우리는 우주 방사선에 노출되고 DNA를 손상시키고 암 발생률을 높인다.

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12)지금까지 제시된 계획은 우주선을 방사선 차단 물질로 감싸고 화성의 지하에 피난처를 만드는 것이다.

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Reasons for Going There

The final question is this: Do we really have to go to Mars, spending such enormous resources and risking people's lives? That is a reasonable question.

13)전문가들의 대답은 화성 탐사에서 얻을 수 있는 두가지 이득을 말한다: 실질적인 이득과 인류로서 갖는 공동운명체 의식이다.

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Practical benefits are economic, educational, and political. Space travel stimulates industry and draws people into careers in science and engineering. And while space exploration is a collaboration between countries to cover its high cost, having a space program raises any country's standing on the world stage.

14)인류로서 갖는 공동체 의식은 점차 고갈되어가는 지구의 자원을 생각해보면 이해할 수 있다.

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15)우리 인류는 지구의 모든 이용가능한 자원을 다 사용하기 전에 생존할 방법을 찾아야 한다.

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That is our shared destiny. Martian exploration can be seen as a step toward a human presence on another planet.

16)쉽지 않지만 인류를 위해서 가치가 있는 꿈이다.

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"You can't really measure the value," says a scientist involved in a Martian project. "If money is our only concern, everyone would study business. But we also want to give meaning to our lives.

17)그것이 꿈과 열정이 인류에게 호소력이 있는 이유죠."

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정답

1) [정답] The world has had to wait for half a century since then before seriously considering going to Mars.

2) [정답] With the development of science and technology over the last several decades, projects involving landing a human on Mars have begun.

3) [정답] With many industrialized countries participating in those projects in one form or another, scientists are making progress, but big challenges still remain.

4) [정답] Even with such powerful rockets, however, a round trip to Mars would be difficult because it would take six months to go there.

5) [정답] While scientists are working to get around this problem, a European company has come up with a plan to launch a one-way trip with four astronauts to Mars, with additional crews joining them every two years to form a colony.

6) [정답] We can apply a special growing system that has been tested on the International Space Station (ISS).

7) [정답] In addition to recovering water that is locked up in ice, the poor quality of the soil and the weak gravity of Mars need to be overcome.

8) [정답] As for oxygen, plants might be used to produce it, and human waste might be recycled to provide nutrients for the plants.

9) [정답] Until there would be enough plants to produce sufficient amount of oxygen, NASA plans to use specially designed machines to convert the carbon dioxide in the Martian air into oxygen.

10) [정답] The heart has to work harder during space travel and on Mars to compensate for the weak or zero gravity.

11) [정답] When we are outside the protection of Earth's air and magnetic field, we are exposed to cosmic radiation that damages our DNA and increases our risk for cancer.

12) [정답] The plan proposed so far is to cover space vehicles with radiation blocking materials and to build shelters beneath the surface of Mars.

13) [정답] Experts answer by mentioning two kinds of benefits Martian exploration may bring: practical benefits and a sense of our shared destiny as the human race.

14) [정답] A sense of our shared destiny as the human race can be understood when considering the increasingly exhausted resources on Earth.

15) [정답] We humans need to find ways to survive before we consume all the available resources on Earth.

16) [정답] It is not an easy but a worthy dream for humanity.

17) [정답] That's why dreams and passion appeal to humanity."

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