

京大過去問 1997年 第2問

次の文の下線をほどこした部分(1)~(3)を和訳せよ。

In 1609, two men, independently of each other, looked at the moon through a new invention from the Netherlands: the telescope. The first man, in July 1609, was Thomas Harriot of London, an accomplished mathematician and astronomer. The other man, several months later, was Galileo, a forty-five-year-old professor of mathematics at the University of Padua.

(1)Luckily, we have some record of what each of these two men thought he observed, and it is instructive to compare their private notes, if we are to understand the reasons for the great differences between them. Of course, both men knew that from the time of Aristotle the moon was thought to be a perfectly smooth sphere made of a celestial substance, the symbol of the incorruptible universe beyond Earth. But this was problematic. To the naked eye some areas of the real moon appeared to be darker than others. Thomas Harriot called it “that strange spottedness.” By the seventeenth century, several theories had sprung up to deal with the problem. But no one had reason to question the supposedly perfect sphericity of the moon.

Among Thomas Harriot’s papers is drawing in which he traces the division between the dark and illuminated portions of the moon. But Harriot makes no comment on why he finds it to be not the smooth curve that one would expect on a perfect sphere but rather a jagged line. (2)Harriot sees, but the current presuppositions make it difficult for him to undertake the intellectual transformation, to cross from sense experience to a new way of understanding.

Galileo enters the story in late November 1609. Through his telescope he carefully observed the moon for several weeks as it went through its phases. It was risky to place much trust in a new instrument in such a context. The telescopes, and indeed the theory of optics itself, were primitive. Some who were allowed to look through Galileo’s telescope failed to see what he was trying to show. And in any case, philosophers thought that any optical instrument would by its nature distort reality.

But Galileo’s own confidence grew quickly. As his skillful drawings show, he too saw the jagged line, but he was also alert to an important new phenomenon, namely, numerous small, bright areas within the dark part of the moon, as well as many dark areas in the bright part. (3)They changed in appearance during a period of 2 or 3 hours as the angle of the sunlight changed, and that led Galileo to the astonishing idea that those small bright and dark areas represented respectively prominences and cavities, just like the mountains and valleys on earth: “Bright ridges

of mountains rise loftily out of the darkness.” So, the moon’s surface was irregular rather than smooth! On January 7, 1610, he wrote that he now believed there was no qualitative difference between the earth and the moon.

As Galileo’s sensational findings spread through Europe, they transformed what other scientists saw. Thomas Harriot raised his telescope again in July 1610; having now read Galileo’s book of 1610, he made a sketch of his new observation. Now he, too, saw craters and other earth-like features and even some that were not in Galileo’s published sketches.