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“Can you believe they put a man on the moon?” The Apollo Program. (3)

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APOLLO: A TESTBED FOR PLANETARY EXPLORATION

**Abstract**

Apollo: a testbed for planetary exploration

The six Apollo missions in which human beings were able to walk on the surface of the Moon gave humankind its first experience of exploring another planet. Although originally conceived with geopolitical objectives in mind, the Apollo programme rapidly took on a scientific dimension: to understand the origin and history of the Moon.

This meant training astronauts mostly having started out as air force pilots in what, on Earth at least, was already the ancient science of geology. At the same time, NASA began selecting astronauts with scientific backgrounds to become the first mission specialists.

Given the complex challenges involved in flying to and landing on the Moon, only trained pilots were assigned to lunar missions (which explains the focus on spacecraft reliability). The process of training them in geology led to new approaches to field studies being devised. Not only that but the lack of an atmosphere on the Moon forced the experts to design new investigative methods that took account of the limited time they were able to spend in the lunar environment.

The first lunar missions (Apollo 11 and 12) were essentially used to test out technologies. Apollo 14 (originally 13) was the first to also have ambitious scientific aims. The results it yielded, however, drew criticism from scientists, yet upon closer analysis one can also see that they made mistakes. At the same time, it was precisely those mistakes that led to progress being made in exploration that would prove crucial in the following missions.

Apollo 15 marked the dawn of the golden age of human space exploration: it featured a rover – a more autonomous lunar module – and above all a commander who had become a passionate geologist. The last two Apollo missions, with their share of successes and errors, demonstrated how important it was to have specialists along for the ride.

All in all, these six lunar missions constitute our sole point of reference when it comes to understanding the benefits and limitations of sending human beings to another planet for the purposes of exploration. The question is highly pertinent when it comes to the exploration of Mars, already well under way thanks to robotic means, but also when reflecting on whether there is any sense in returning to the Moon as a stopping-off point before going on to explore the Red Planet.