

READY FOR MARS

The European Space Agency (ESA) is leading a new mission to Mars called ExoMars, and it's about to attempt to land a probe on the Red Planet's surface. The probe is called Schiaparelli for the Italian astronomer **Giovanni Schiaparelli**, one of the first to map Mars' surface in the late 1800s. What would Giovanni have thought if he could have watched the probe detach successfully from its mothership on Sunday October 16, 2016? The probe and mothership are both now barreling toward Mars. The Schiaparelli probe will make a controlled landing on Wednesday (October 19).

ExoMars has just a single chance to get captured by Mars' gravity. The spacecraft and the mission controllers who will make it so are ready for arrival. The ExoMars Trace Gas Orbiter is on a multiyear mission to understand the methane and other gases in Mars' atmosphere at low levels and could be evidence for possible biological or geological activity.

The 3.7 tonne mothership is carrying the 577 kg Schiaparelli lander that will test key technologies in preparation for ESA's 2020 rover mission. The pair have almost completed their 496 million km journey, and are now speeding towards a critical stage: releasing the lander on Sunday and the lander's descent and touchdown next Wednesday, at the same time as the main craft begins circling the planet.

They are now on a high-speed collision course with Mars, which is fine for the lander -- it will stay on this path to make its controlled landing, however, to get the mothership into orbit, it made a small but vital adjustment on 17 October to ensure it avoids the planet. And on 19 October it must fire its engine at a precise time for 139 minutes to brake into orbit. There is only a single chance to get it right.

Following months of intensive simulations, the team is now changing to 'full-time' shifts, and worked in the main control room to oversee separation, the adjustment to avoid hitting Mars and, finally, the main engine burn starting at 13:05 GMT on Wednesday. It must happen exactly at the planned time to get the craft into orbit.

It's incredible to imagine this craft in space, barreling toward the Red Planet at 21,000 km/h and ultimately setting down on Mars' surface. Schiaparelli will use a heatshield, parachute and thrusters to brake to about 2 metres above Mars' surface. At that point, a crushable structure on its underside is supposed to absorb the final shock.

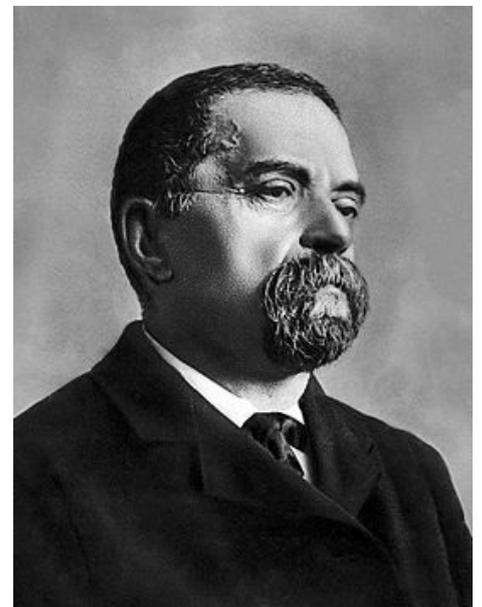
BIOGRAPHY

Giovanni Virginio Schiaparelli was educated at the University of Turin, and later studied at Berlin Observatory, under **Encke**. In 1859–1860 he worked in Pulkovo Observatory and then worked for over forty years at Brera Observatory. He was also a senator of the Kingdom of Italy, a member of the Accademia dei Lincei, the Accademia delle Scienze di Torino and the Regio Istituto Lombardo, and is particularly known for his telescopic observations of Mars. In his initial observations, he named the "seas" and "continents" of Mars. During the planet's "Great Opposition" of 1877, he observed a dense network of linear structures on the surface of Mars which he called "canali" in Italian, meaning "channels" but the term was mistranslated into English as "canals", suggesting an artificial construction on the planetary surface. **This incorrect translation gave rise**

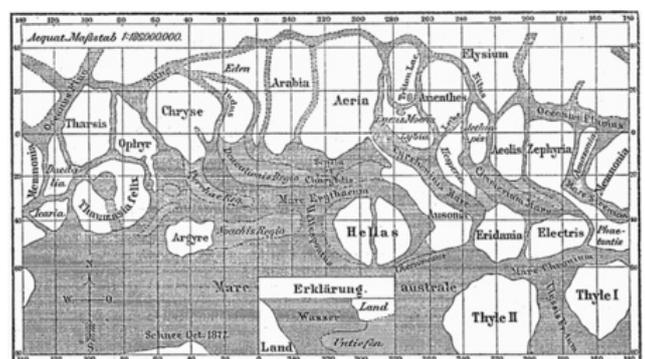
to waves of hypotheses, speculation, and folklore about the possibility of intelligent life on Mars.

Among the most fervent supporters of the artificial canal hypothesis was the American astronomer **Percival Lowell**, who spent much of his life trying to prove the existence of intelligent life on the red planet.

Martian canals remained in the public mind for the first half of the 20th century, and inspired a corpus of works of classic science fiction. Speculations about the canals were finally put to rest in the 1960s, when Mariner 4 took photos of the surface. AK, with EarthSky Notes



Giovanni Virginio Schiaparelli (14 March 1835 – 4 July 1910) was an Italian astronomer and science historian



Map of Mars area with "canali" drawn by Schiaparelli during the planet's opposition in 1877