

The comet landing: A new milestone in space exploration

15 November 2014

Millions of people around the world greeted with enthusiasm the news this week that the Philae lander had successfully touched down on Comet 67P/Churyumov-Gerasimenko, a small and rocky celestial body half a billion kilometers from Earth. A new milestone has been reached, with scientists for the first time able to conduct an on-the-spot analysis of a comet.

During its sixty hours of operation, Philae's nine instruments gathered information about the comet that will assist in answering long-standing questions about the history of the solar system. In particular, scientists hope that the mission will provide insight into the theory that comets are an early source of water and organic compounds on Earth. Though the lander has gone into hibernation from a lack of power, the results it has sent back are already providing insight into the comet's composition.

There is hope that the small "hop" Philae undertook Friday to change its orientation will let the probe collect enough power quickly to briefly come back online. More likely, it will silently gather power during the days and months ahead, eventually allowing it to continue its studies. The Rosetta orbiter that carried Philae to its destination will remain on station and monitor the comet through at least next year as it approaches the Sun and begins to shed large amounts of itself.

Amidst endless proclamations of the supposed glories of the profit principle, one must emphasize that the Rosetta mission, launched a decade ago, was not motivated by the private gain of one or another giant corporation, but rather the rational integration of the collective labor of thousands of scientists around the world.

The lander, able to sample the surface and the gas evaporating from the comet's volatile materials, has a

suite of instruments designed and constructed by scientists in more than a dozen countries. The management of the lander was led by scientists in Germany and involved a consortium including experts in Austria, Finland, France, Hungary, Ireland, Italy and the UK.

Unnecessary restrictions in scientific funding—dictated by governments with more "important" priorities—did have a significant impact on the mission, however. Initial plans for a spacecraft that could return to Earth with a sample of the comet were rejected due to insufficient resources. Less costly options for the mission's launch vehicle and the scrapping of a propulsion system for the lander were also selected for financial, rather than scientific reasons. The lack of a radioactive power source, moreover, negatively impacted the Rosetta mission and undermines the possibility of similar endeavors in the future.

Nevertheless, by all accounts the comet landing has proven highly successful, and in the coming weeks and months we will have ample opportunity to learn from Philae's long journey.

The success of Philae contrasts sharply with the two space disasters that occurred in the span of one week at the end of last month, both of which highlighted the consequences of privatization and the subordination of space exploration to private profit. SpaceShipTwo, the flagship rocket of space tourism startup Virgin Galactic, exploded during flight, killing a test pilot. In another incident, an Antares rocket of the private Orbital Sciences Corporation on a resupply mission to the International Space Station suffered a catastrophic engine failure just after launch.

In both instances, profit took priority over safety and engineering: SpaceShipTwo was flying with a new fuel that scientists at the company did not feel was

sufficiently tested, while the Antares was using repurposed Soviet engines more than forty years old. (See, “Capitalism and the space program”)

The scientific achievement stands out all the more starkly against the disastrous trajectory that the ruling classes are plotting, which threatens to plunge the world into the abyss.

This weekend, the leaders of the G20 are gathering in Australia amidst a growing geopolitical crisis provoked by the increasingly aggressive warmongering of the major imperialist powers. In Europe, the crisis in Ukraine once again has the US and Western Europe at the throat of Russia. In the Pacific theater, Australia, Japan and a host of other countries are being arrayed by the US to contain China. In the Middle East, the Obama administration has launched and is rapidly expanding a new war in Iraq and Syria.

Vast sums are squandered on the means of death and destruction. The United States alone spends well over half a trillion a year to maintain its military and intelligence apparatus—compared to the \$1.75 billion dedicated to the Rosetta mission. It has been estimated that the war in Iraq from 2003-2011 will end up costing upwards of \$4 trillion.

Then there are the sums allocated to the financial aristocracy, the untold trillions handed out to the banks to prop up the stock markets and fuel the engorgement of the super-rich. Moreover, as they drive humanity toward a dead end, the ruling elites in every country are resurrecting, in political and ideological form, all that is backward, anti-scientific and reactionary.

Scientific achievements such as the comet landing are an important reminder that humanity is capable of great things, both within and outside the confines of the Earth’s atmosphere. They point to possibilities whose realization depends on the independent political mobilization of the working class, which must emerge as the defender of everything that is progressive.

What is it that blocks a resolution to the great and pressing challenges that we confront? It is not the productive capacities of mankind, but the social organization of capitalism. In a society that was set on rational foundations, the scientific methods used to land on a comet would be applied equally successfully to solving problems here on Earth: poverty, unemployment, environmental catastrophes, disease, hunger, war.

In considering the comet landing, one is reminded of the late Carl Sagan, who once remarked, in contemplating the vastness of the cosmos: “Countless worlds, numberless moments, an immensity of space and time. And our small planet, at this moment, here we face a critical branch-point in history. What we do with our world, right now, will propagate down through the centuries and powerfully affect the destiny of our descendants. It is well within our power to destroy our civilization, and perhaps our species as well ... But we are also capable of using our compassion and our intelligence, our technology and our wealth, to make an abundant and meaningful life for every inhabitant of this planet.”

These words were said in 1980, amidst the Cold War conflict between the United States and the Soviet Union. Thirty-five years later, they apply with even greater force. The choice between the two possibilities—the destruction of civilization or the establishment of the conditions for scientific improvement and social progress—depends on the creation of a new foundation for human society, the overthrow of capitalism and its replacement with socialism. It is, in short, a revolutionary question.

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