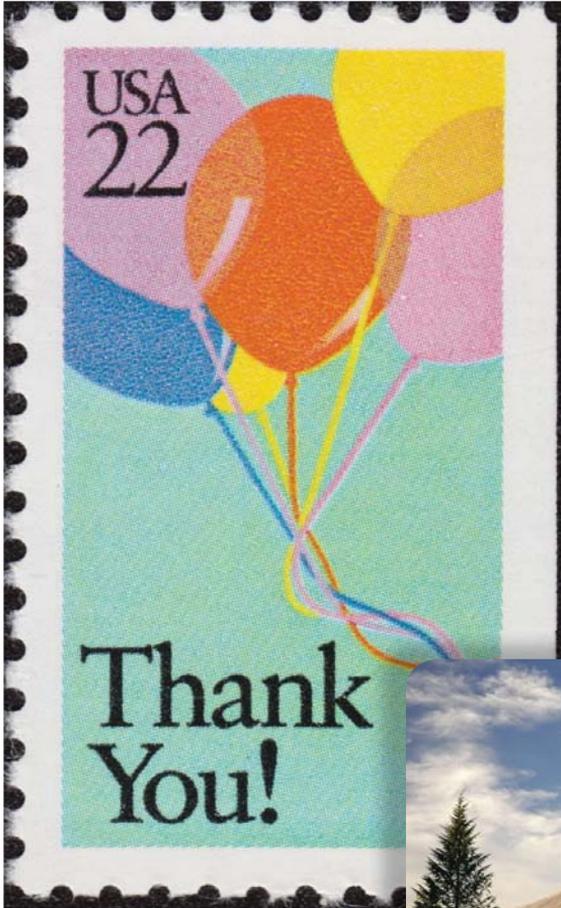


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by Apollo 12 Page 70**



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Boldly to the Future continues for ATA! See Page 10.

Surveyor 3 *visited* by Apollo 12

Don Hillger and Garry Toth

The *Apollo 12* mission, the second in which two astronauts landed on the moon, included a unique event: a visit to the non-manned *Surveyor 3* spacecraft, which had landed 2½ years earlier. Part of the astronauts' mission was to investigate *Surveyor* and bring back some pieces for later analysis. They also made the usual collection of moon rocks and dust.

Rather than covering the entire *Surveyor* series, this article focuses on the *Surveyor 3* mission. It was the first and, to date, only occasion in which humans have visited a non-manned probe sent to another world. Only postal items showing *Surveyor 3* and the visiting *Apollo 12* astronauts are included in this article.

Surveyor 3, third in the Surveyor series

Surveyor 3 was launched April 17, 1967, and landed on the moon April 20. It was the second *Surveyor* to successfully accomplish a soft landing, following *Surveyor 1*. Of the seven *Surveyors*, only *Surveyors 2* and *4* did not complete their missions. One of the goals of the *Surveyor* spacecraft was to return data for selected lunar mare sites in support of the planned *Apollo* program landings.

The data from *Surveyor 3* showed that it had not made a fully-controlled soft landing, but in fact bounced twice before settling down in an upright position. The

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problem was due to misleading signals from the spacecraft's descent radar caused by highly reflective rocks. Despite this problem, *Surveyor 3* was able to carry out its mission.

Surveyor 3 returned data until May 4, 1967, but, unfortunately, failed to come back to life after the two-week lunar night. It was not until the *Apollo 12* mission in November 1969, more than two years later, that *Surveyor 3* was again in the spotlight. The *Apollo 12* Lunar Module landed less than 200 meters (about 600 feet) from *Surveyor 3*.

On their second moonwalk, on Nov. 20, 1969, astronauts Charles (Pete) Conrad, Jr., and Alan Bean visited and examined *Surveyor 3*. (Astronaut Richard Gordon remained in the Command Module, orbiting the moon.) Conrad and Bean took photographs and removed about 10 kg of parts from the spacecraft. They were returned to Earth and analyzed to determine how they were affected by exposure to the harsh lunar environment. The *Surveyor 3* TV camera brought back from the moon is on display at the Smithsonian National Air and Space Museum in Washington, D.C.

The returned parts of *Surveyor 3* were also examined for living material, since the spacecraft was not sterilized prior to launch. Scientists wanted to know if terrestrial organisms could have survived in space all that time. While one sample that was tested had bacteria, the verdict was inconclusive, as there may have been accidental contamination of the material after being returned to Earth.

Surveyor 3 is shown on a small number of postal items, all of which show the visiting *Apollo 12* astronauts. Included here are all of the postal items known to the authors, other than slight variations that will be mentioned.

A postage stamp from Chad (Scott 225Ac, 1970), one of a strip of three, shows an *Apollo 12* astronaut next to *Surveyor 3*, with the *Apollo 12* Lunar Module, *Intrepid*, in the background. This scene is based on an actual photograph of Pete Conrad and *Surveyor 3* taken by Alan Bean. *Surveyor 3* had landed in what was subsequently named the Surveyor Crater, and *Intrepid* is seen beyond the crater rim. This stamp is also available in an imperforate version.



Haiti (Minkus 1318, 1973) shows an *Apollo 12* astronaut and *Surveyor 3*. An extendable motor-driven scissors-arm of the surface

Chad (Scott 225Ac, 1970) and Haiti (Minkus 1318, 1973).

soil sampling scoop, first used on *Surveyor 3*, is very apparent in this stamp as well as in the Chad stamp already mentioned. The arm was designed to manipulate the soil around *Surveyor*, within the view of the TV camera. It was used to dig four trenches in the lunar soil. Chemical analysis of the soil was performed by an alpha-scattering instrument, and pictures of the soil were transmitted back to Earth. The same

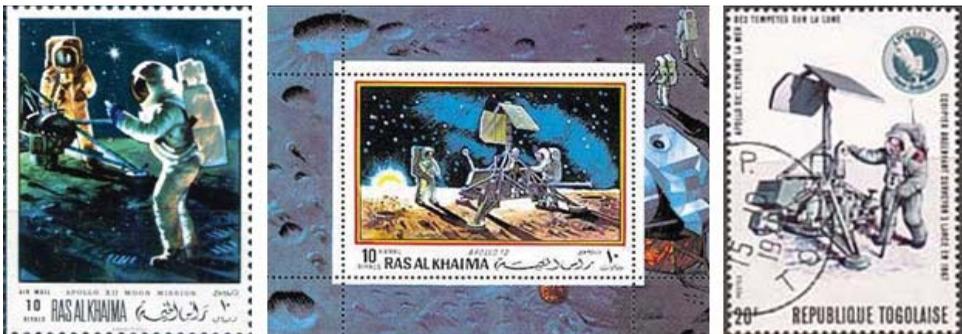


Hungary (Scott C304, 1970) and Mali (Scott 1036d, 1999)

1970), both astronauts are shown along with *Surveyor 3*. This was an impossible picture, as no camera-shutter self-timer was available to the astronauts. Most other postal items show only a single astronaut, such as a stamp from Mali (Scott 1036d, 1999), which is part of a souvenir sheet of four stamps.

A stamp issued by Ras Al Khaima (Michel 392, 1969) again shows both astronauts inspecting *Surveyor 3*. The Ras Al Khaima stamp is also available as a souvenir sheet, perforated and imperforate. Another souvenir sheet of one from Ras Al Khaima (Yvert PA49, 1970) shows both astronauts. This item is not listed by either Scott or Michel. Also, Togo (Scott 743, 1970) shows a single astronaut and *Surveyor 3*. This item was later overprinted (Scott 748, 1970) with an inscription to welcome the *Apollo 12* astronauts back to Earth from their lunar visit.

The authors are aware of only one postal cover commemorating the astronauts' visit to *Surveyor 3*. The KimCover, canceled Nov. 20, 1969, shows the impossible picture of both astronauts with *Surveyor 3*, and *Intrepid* in the background. As with many postal items, what is depicted can often be attributed to artistic license, showing what must have happened, rather than being based on actual images. Other



Ras Al Khaima (Michel 392, 1969; and Yvert PA49, 1970) and Togo (Scott 743, 1970).

stamp was also later overprinted (Minkus 1377, 1974) for the centennial of the Universal Postal Union (UPU).

On the next stamp, from Hungary (Scott C304,



Special-event cover canceled at Vatican City with (KimCover) cachet showing Surveyor 3 and Apollo 12 astronauts.

covers must exist for the *Apollo 12/Surveyor 3* interaction, and the authors would appreciate receiving scans of them.

Lunar Reconnaissance Orbiter evidence

In 2009, 40 years after the *Apollo 12* visit to *Surveyor 3*, the Lunar Reconnaissance Orbiter (LRO) obtained images of the *Apollo 12* landing site. The spatial resolution of the images was good enough to show all of the major remains from the mission, including *Surveyor 3*, the *Intrepid* Descent Stage, the nuclear-powered Apollo Lunar Surface Experiments Package (ALSEP) and even the footpaths of the astronauts. The ASLEP returned scientific data directly to Earth for more than seven years after the *Apollo 12* mission. The LRO image mentioned (www.nasa.gov/mission_pages/LRO/multimedia/lroimages/roc_20090903_apollo12.html) can be found on the Internet.

Additional online information

A checklist of known postal items showing the *Surveyor* series satellites (rammb.cira.colostate.edu/dev/hillger/Surveyor.htm), including the *Apollo 12* items highlighted in pale yellow, is available as part of a website developed by the authors for many different non-manned satellites, which can be found at the following url: rammb.cira.colostate.edu/dev/hillger/satellites.htm. Users are asked to provide missing or additional information or images that they may have. The online information will be updated whenever new details are provided to the authors. ☰

The authors have researched and written extensively on the subjects of weather, climate and non-manned satellites on stamps and covers.

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