

Moon-Landing Practice Bears Fruit For Apollo 11 Astronauts

By BILL DELANY
TIMES-HERALD STAFF WRITER

A \$3.5 million lunar simulator on the Peninsula may have repaid its full cost in the last critical seconds of Sunday's lunar landing.

Astronaut Neil A. Armstrong, who rehearsed this phase of the "giant leap for mankind" at Langley Research Center on June 30, manually flew the lunar module Eagle to safety.

The towering gantry, which has been a Langley landmark for the past six years, was

designed for just this purpose—to give Armstrong and his fellow astronauts a feel for the module's control in the event automatic devices failed.

Eagle's computers didn't fail Sunday afternoon, but they might well have guided the spacecraft into an impossible situation.

Armstrong, in a calm-voiced report to Eagle's mission center in Houston, reported "that may have seemed like a very long final phase, but the automatic targeting was

taking us right into a football-field-sized crater with a large number of big boulders and rocks for about one or two crater diameters around it.

"It required us to fly manually over the rock field to find a reasonably good area."

This split-second decision to avoid the landing site programmed before it was in site left Eagle's descent stage with enough fuel to fly only 49 more seconds.

By that time Eagle was down, and in a smooth area

which kept the ascent module ready for this afternoon's flight back to Columbia high overhead.

Armstrong, one of the best customers in the landing training here, practiced just this type of emergency at the end of June.

His companion, Air Force Col. Edwin (Buzz) Aldrin, tried his hand at the facility a few days earlier in June.

Donald Hewes, who heads the Langley division which operates the facility, then explained that the module swung

from the quick operating cranes is controlled almost like the actual landing.

Hydrogen peroxide provides both directional control and lift in the "live mod" simulation.

Last month's test was even more realistic with the addition of a concrete-and-slag replica of a lunar surface.

Armstrong and Aldrin flew to pinpoint landings between simulations of craters which should be—and were—avoided at the Sea of Tranquility.

The 250-foot simulator is perhaps the most dramatic—and certainly the most visible—of Langley's Apollo support tasks.

It is by no means the only contribution made by Hampton scientists to the success of Apollo 11 and the moon landing program.

The tasks also included basic research into the design of the spindly legs which hold the lunar module a few feet off the surface of the moon today.

Full scale tests of the module's legs also used the landing simulator in work conducted here in 1965.

Later today, when Armstrong and Aldrin join with Michael Collins in the orbiting command module Columbia, the Apollo 11 team will use another Langley development—lunar rendezvous.

A Langley hangar housed a rendezvous trainer used in the Gemini program which proved its value in a series of successful flights.

Langley engineers also con-

tributed basic knowledge in other fields—such as re-entry techniques, water landing and recovery operations for the Apollo mission which officially was born in Hampton.

Date of birth for Apollo may well be set with the initial contract, inked here near the end of the Mercury space flight era.

Armstrong flew seven X-15 missions when this rocket research aircraft was operated as a Langley program. Among other items, the X-15 provided basic knowledge in controlling

aircraft outside of atmosphere through the jet thrusters which guided Eagle to its nest.

Langley participation in unmanned explorations provided keys to the moon's bearing strength, through the soil analysis of Surveyor, and to the variations in lunar gravity imposed by the mascons found through the center's own Orbiter moon mapping satellite.

Orbiter also took the aerial photos which guided selection of Tranquility Base as site of the first moon landing.

Godwin Refutes Scheibel Story About Drowning

"Astounded" was the substance of Governor Mills E. Godwin's comment about the story written for Saturday's Times-Herald by Kenneth Scheibel, Washington correspondent, who described Virginia's chief executive as being "angry" and "bitter" that



Supercrane Docks At Shipyard

The strangest "ship" ever to enter Hampton Roads was berthed Sunday morning at Newport News Shipbuilding and Dry Dock Co.

Arrival here marked the end of a maritime career which saw the 1,658-ton catamaran barge towed out the Lt. Lawrence Seaway and down the Atlantic Coast.

water of the James River 150 feet west of the shipways.

The Columbia, S. C., steel erection company has obtained special gear for the assembly process. The equipment includes a 220-foot barge which will be used to shift the heavy bases to the wheeled trolleys, and a specially-designed 600-ton ca-

capacity crane to erect the legs.

Girders salvaged by Wilhoit in replacement of an interstate bridge near Washington will have a role in bracing for the final construction job. These highway bridge beams were previously used by Wilhoit in building the University of South Carolina coliseum's giant frame roofing.

Present schedules would place the first major assembly work—shifting the legs from barge to trolley—in about a month.

When completed, the supercrane will be able to shift weights up to 310 tons from subassembly point to the shipway area. The crane will clear the largest ships yet to enter

the dry docks—such as the liner United States and Carrier Enterprise—even if they were on construction blocks simultaneously.

The crane will be powered by electricity, pulling from a newly installed 10,000-volt line feeding a 750,000-watt transformer station on the crane.

1
-
t
u
y
t
"
g
w
l-
h
e
l-
g
f
l-
r
I
s
n.
g
r-
is
ie
te