

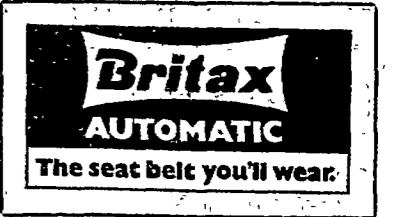


# THE GUARDIAN

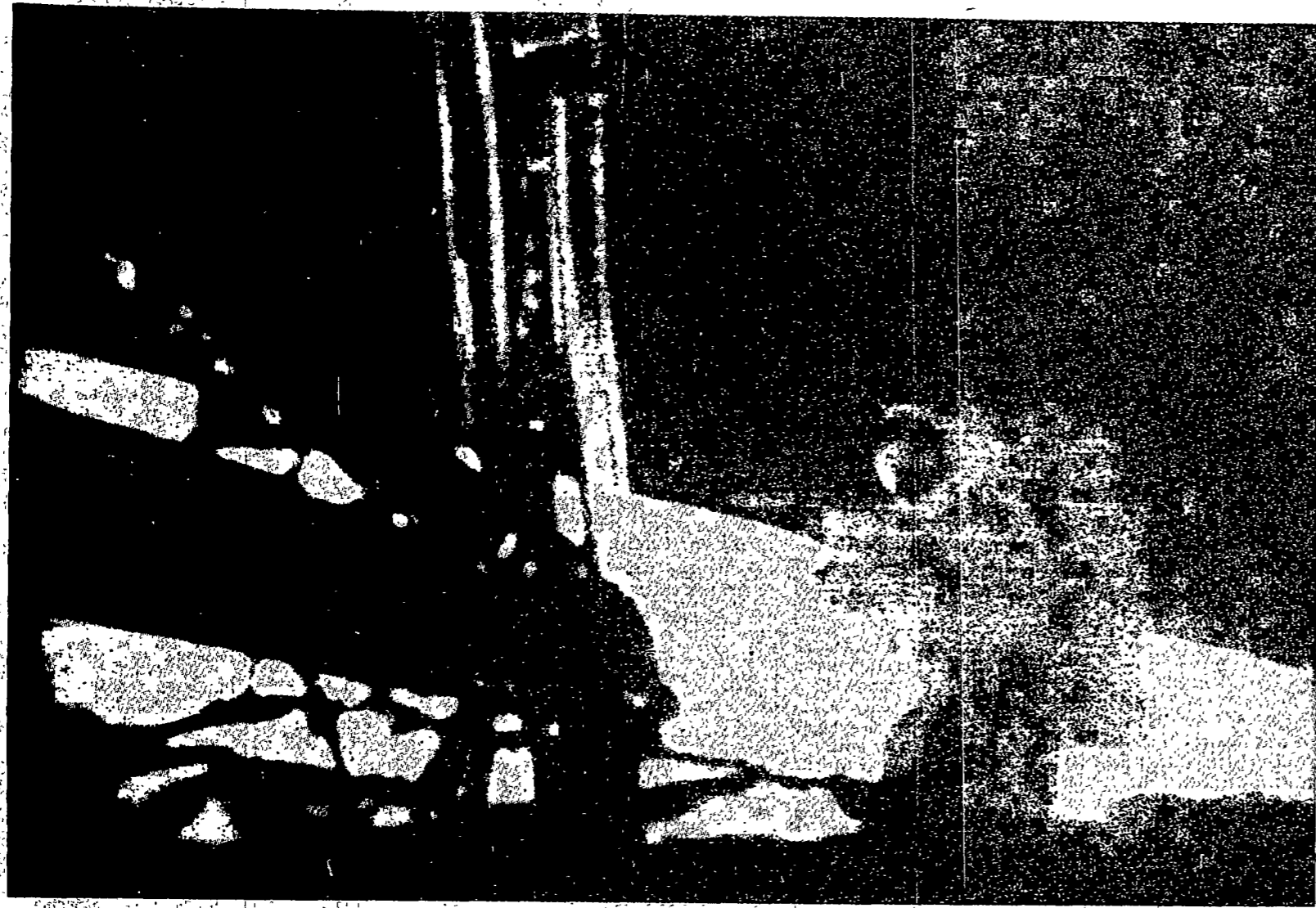
Manchester

Monday July 21 1969

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## Armstrong and Aldrin steer Eagle to a perfect touchdown



Neil Armstrong steps from the lunar module lander to become the first man on the moon.

# 3 56 am : man steps on to the moon

By ANTHONY TUCKER

Men are on the moon. At 3 56 this morning Armstrong stepped from the lunar module and set foot on lunar ground. It was the fulfilment of a dream which men have shared since the beginning of recorded history. Aldrin followed his commander down the steps of the lander—already named Tranquility Base—19 minutes later.

Armstrong reported that the surface seemed to be a very fine powder into which his feet sank about one-eighth of an inch. He could see his footprints clearly.

Armstrong's first words on the moon were: "That's one small step for man. One giant leap for mankind." The first television view millions on earth saw was Armstrong's foot descending slowly. Then there was his full figure.

"It's a very soft surface, but here and there where I poke with the sample collector I run into a very hard surface," he said. "It appears to be the same material." The moon "has a harsh beauty all its own," Aldrin reported. "It looks like the desert of the United States, but it is very beautiful."

Aldrin experimented with movement in the low gravity, and remarked that a moonwalker had to be careful to lean in the direction he wanted to go or he would lurch around "like someone slightly inebriated." When they started to examine their surroundings Aldrin reported finding a purple rock.

The decision to walk early was made three hours after the lunar module Eagle had made a perfect landing at 9 17 p.m. four miles downrange from the chosen site. The spacecraft was steered manually to clear a boulder-strewn crater "the size of a football field." It was a moment of extraordinary tension and silence. The lunar module curved gently down over the Sea of Tranquility, its drama heightened by the calm, almost casual voices of the astronauts and the mission controller at Houston.

The landing was perfect. Spaceflight Centre and the world seemed momentarily stunned by emotion: only Armstrong, Aldrin and—above them—Collins seemed unmoved. You got a bunch of guys who are turning blue who can start turning again," said the Houston space controller.

Separation began on this side of the moon, but the descent itself—the journey to which President Kennedy committed his nation eight years ago—began with a firing of the Lunar module's motor after a long separating half orbit from the far

and the descent rate only 2 1/2 ft. a second, the spacecraft seemed to pause and wait as Armstrong searched the ashen-grey landscape for the hidden, sudden rock which would shatter the landing. With a permitted tolerance of 12 degrees about the horizontal—a tilt of 6 degrees in any direction—if the spacecraft was ever to rise again, the search for a landing area had to be a knowledgeable and as perfect as man could make it. A few minutes later, although time seemed to have slowed down, we knew that it had been good. The tilt was 4 1/2 degrees. A second minor miracle had been worked. Every step of the preparation for landing yesterday went smoothly. Armstrong and Aldrin transferred from the command module code-named Columbia—to the lunar module Eagle during the tenth orbit and on the eleventh orbit Glynis Lunney, the flight controller at Houston, told the world that all spacecraft systems were "operating just fine."

## 'A step for a man—a leap for mankind'

Neil Armstrong, the Apollo 11 commander, crawled feet first out of the lunar module's hatch shortly before 4 a.m. today and climbed down a ladder to become the first man to set foot on the moon.

"OK, Houston, I am on the pad," he said at 3 56 a.m. as he stepped down on to the lunar module's extended leg. He descended the lunar soil as if powdered charcoal and said that his boots went in only about an eighth-of-an-inch.

"This is one small step for a man," he said as he stepped from the lunar module on to the moon, "but one giant leap for mankind."

He reported finding no difficulty in moving about in the moon's gravity, one sixth of that on earth. Half way down the ladder he pulled a lever to deploy the television camera that recorded his first historic step on to the surface.

As the television pictures came on at the Space Centre in Houston a wild cheer went up from press correspondents gathered watching the monitor screen and in the flight control room we could see hands flying up with people congratulating one another.

**Soil collected**  
After getting his balance, Armstrong's first action was to get soil with a large scoop rather like a butterfly net to be stowed into a hip pocket in case he had to make a rapid return to lunar module, Eagle.

Shortly after this he was joined on the surface by Edwin Aldrin. As Aldrin backed out of the hatch, guided by directions from Armstrong, he joked: "I'm making certain not to look it." On sliding down the last three feet to the surface he almost seemed to jump for joy in the one sixth gravity. "Isn't that something!" he said as he bounced up and down.

The black and white television gave superb pictures of both Armstrong and Aldrin gliding and hopping round the lunar module almost like kangaroos, Aldrin said: "I can bend down easily. I can also reach up. It really seems easy."

Earlier, the lunar module had landed in a wide, rocky plain four miles down range from the target area in the Sea of Tranquility.

Tranquility Base



Neil Armstrong

From ADAM RAPHAEL at the Space Centre, Houston, July 21

here. The Eagle has landed," said Armstrong, a man with a just reputation for saying little. The astronauts were not certain where they had come down because their landmark tracking in the final approach was interrupted by alarms in the lunar module's cabin. Ground tracking stations initially estimated their position as 0.789 degrees North, 26 degrees East, near the lunar equator, well outside the planned landing area.

**Grey rocks**  
Mr Gene Kranz, flight director, said last night that the alarms were caused by computers in the lunar module becoming overloaded. It was still not known, he said, why Eagle had missed the target area by four miles.

Armstrong described the scene out of his small triangular window shortly after landing: "It seems to be a relatively level plain with a fairly large number of craters of the 5ft. to 50ft. variety and some ridges, mostly small but some

20ft. to 60ft. high, and literally thousands of little 1ft. and 2ft. high craters around the area.

**Pause for thanks**  
Nearly three hours after touchdown, Aldrin sent a special message to Houston. "This is the LM pilot," he said. "I'd like to take this opportunity to ask every person listening in, wherever and wherever they may be, to pause for a moment and contemplate the events of the past few hours, and to give thanks in his or her own way."

Aldrin is an elder and lay preacher of a Presbyterian church at Webster, Texas.

Collins, the command module pilot, then took a close look from about forty feet at the lunar module as it revolved slowly, reporting that its landing gear was fully extended. "Looks like you have a fine flying machine there," he said. After this prouetting for inspection, Columbia thrust away for 2,000 feet.

low point of only 50,000 feet above the moon's surface. Then, with Aldrin and Armstrong standing side by side in the lunar module the descent engine was re-fired by computer command, breaking the orbital speed for the final 230 miles on a slanting course to the moon.

Eight minutes after the descent engine fired Eagle was barely 7,500 feet above the surface, and it then swung to a nearly vertical position to allow the astronauts to peer out of the triangular windows in front of them at the approaching Sea of Tranquility.

Ninety seconds later, with the spacecraft flying at about 45 mph forward and 10 mph downward, Aldrin took over manual control from Eagle's computer. For the last 150 feet he held the lunar module in a hovering position directly above the landing site and then very slowly throttled back the engine until the probes touched the moon surface. There was a delay of one second. The engines were cut, and the lunar module jolted on to the moon.

Russia's Luna 15 kept everyone guessing right up to the last moment yesterday. As the Apollo craft prepared to separate, Jodrell Bank reported that the unmanned Russian craft had gone into a new orbit, taking it to within 10 miles of the moon's surface at its closest approach, and bringing its track closer to the Sea of Tranquility.

But just before the Americans touched down, all the normal news communication lines into Moscow were broken. They were restored 10 minutes later. At that time, Moscow radio carried the first announcement of the American landing.

By our Science Correspondent



The Apollo 11 landing site (ringed) on the southern border of the Sea of Tranquility close to the lunar equator. This area is one of seven chosen because of their comparative absence of obstacles. The other landing sites, some of which would bring men close to earlier unmanned moon landing spacecraft, will be used in later Apollo missions. Map by National Geographic Society.

## Luna keeps secret

By our Science Correspondent

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## 'Now part of our world'

"Because of what you have done, the heavens have become part of man's world."

"For every American this has to be the proudest day of our lives."—President Nixon to the astronauts this morning.

side of the moon and out of touch with the control centre back at Houston.

The world waited for the static-filled radio silence to be broken by an astronaut's affirmative. After what seemed on earth to be an age, Collins came up first. Then, the millions who had hoped to watch the first steps of separation on television, at last heard a calm and distant Armstrong confirm that the landing trajectory was good. The first minor miracle had been performed.

## Motor as brake

From that moment, with the tension mounting second by second and with the minimum of interrogation from earth, or from the orbiting Collins, the lunar module bore Armstrong and Aldrin downward, using its motor as a brake and slowly tilting until it was upright and ready for landing.

On and down, past "highgate" at 7,000ft. with the braking phase complete and the spacecraft rotated so that its windows faced forward—the point at which the final approach began.

Still onward and down, but more slowly now, the spacecraft moved with the astronaut checking, checking, and checking again that all systems were "go." Visual approach, but still under automatic control, began at 500ft up with the spacecraft still inching slowly forward. At 250ft., with all forward motion stalled

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