

London Review of Books

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What did you expect?

Steven Shapin

- *Moondust: In Search of the Men Who Fell to Earth* by Andrew Smith

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In Tom Stoppard's *Jumpers*, Dorothy Moore – a retired music-hall chanteuse and the wife of a moral philosopher called George Moore – is going dotty in her bedroom. The precipitating cause is a televised fight between the first two astronauts to land on the Moon about who gets to go back home on a damaged lunar ascent module that can carry only one. Astronaut Scott shoves Astronaut Oates off the steps of the module – ‘I am going up now. I may be gone for some time’ – and blasts off. For Dorothy, this is the end of all romance (‘Goodbye spoony Juney Moon’): the men are unworthy of the Moon. Opening in January 1972 at the Old Vic, *Jumpers* came two and a half years after the *Apollo 11* astronauts Neil Armstrong and Buzz Aldrin became the first men on the Moon and less than a year before the *Apollo 17* astronauts Jack Schmitt and Gene Cernan became the last. Between July 1969 and December 1972, 21 astronauts left on Apollo missions to put men on the Moon; 12 actually walked on the lunar surface, of whom nine are still alive. Each mission was made up of three men, one of whom remained in the command module orbiting the Moon while the other two travelled down ‘the extra 60 miles’. Amazingly, since some of these astronauts seem privately to have estimated their chances of survival at only about 50-70 per cent, none of them died during a Moon-landing mission, though *Apollo 1* took the lives of three men on the launch-pad and *Apollo 13* barely made it back after having to abort an attempt at landing. Hard-to-interpret Chinese ambitions apart, there are no active plans for further lunar landings, and so, more than thirty years on, these nine men are the only ones left who can say what it was like to stand on another celestial body and look at Earth.

The context for President Kennedy's stunning decision in May 1961 to commit the US to putting men on the Moon 'before the end of this decade is out' was military rivalry with the Soviet Union – a month previously he had suffered the ignominy of the botched Bay of Pigs invasion – but there was a certain amount of universalistic rhetoric associated with the actual lunar landing. The American flag was planted, though there was some awkwardness in getting it to stand up straight and to make it look like it was waving in the non-existent lunar wind. (When the *Eagle* took off back to Earth, the flag fell over.) When they landed, President Nixon phoned long-distance to declare that 'for every American this has to be the proudest day of their lives,' which was Armstrong's cue to reply: 'It's a great honour and privilege for us to be here, representing not only the United States but men of peace of all nations.' They left behind a plaque inscribed with their names as well as Nixon's: 'Here Men from the planet Earth first set foot upon the Moon, July 1969 AD. We came in peace for all mankind.' And when Nixon flew out to the aircraft carrier which plucked them from the Pacific, he announced: 'This is the greatest week in the history of the world since the Creation.' The astronauts, that's to say, were supposed to be representatives of the whole human race, and they had an experience shared by no other human beings, before or since.

The first speech uttered from the surface of another celestial body turned out to be an absurdity. The task fell to Armstrong as he descended the stairs of the lunar module: 'That's one small step for man, one giant leap for mankind.' But 'man' and 'mankind' amounted to much the same thing; if there was to be any point in the First Sentence, it would derive from an implied contrast between what a particular individual did and its significance for the whole of humanity. After a few weeks, Nasa could no longer withstand repeated observations that the First Sentence was vacuous.

Armstrong said that he was 'misquoted' in the official transcript and an official spokesman announced that 'static' obscured a missing 'a': 'That's one small step for a man, one giant leap for mankind.' 'I rehearsed it that way,' Armstrong later said. 'I meant it that way. And I'm sure I said it that way.' The claim, however, smacks literally of *l'esprit de l'escalier*, and you can judge its accuracy for yourself by

listening to the recording at

www.hq.nasa.gov/office/pao/History/alsj/a11/a11.step.html. There is no evident 'static' and it's clear enough that Armstrong said what everybody heard him say at the time. In the event, he eventually gave up the pretence: 'Damn, I really did it. I blew the first words on the Moon, didn't I?'

What did you expect – poetry? In fact, some people did expect poetry, or at least thought the astronauts had some sort of responsibility to the rest of us to evoke a feeling of what it was like to be men on the Moon. If they were humanity's representatives, they should tell us all about it – vividly, evocatively, movingly. In November 1969, the *Times* ran a piece entitled 'Put a Poet on the Moon': 'I am not carping,' Colin Webb wrote, 'about Neil Armstrong's "That's one small step for a man, a giant leap for mankind" – whoever wrote it . . . A British astronaut would have stuck in a flag and said: "I name this moon Elizabeth."' And Michael Collins – the *Apollo 11* astronaut left behind orbiting in the command module – was the first of several Apollonians who suggested eventually sending a 'priest, poet or philosopher': 'From these people you might get a much better feeling of what we saw.' If you want poetry, why send pilots? Can you remember anything else Armstrong said? Maybe 'Houston, Tranquility base here – the *Eagle* has landed!' Can you remember what Armstrong said next? ('Yes, the surface is fine and powdery. I can kick it up loosely with my toe. It does adhere in fine layers, like powdered charcoal, to the sole and sides of my boots. I only go in a small fraction of an inch, maybe an eighth of an inch, but I can see the footprints of my boots and the treads in the fine, sandy particles.') Can you remember anything else that anyone said on the Moon? Can you guess the Last Lunar Words? There's actually a dispute about this: Cernan distinctly recalls saying 'Let's get this mother out of here,' while the Nasa transcript has him saying 'Okay. Now, let's get off. Forget the camera.' After that, Schmitt is scripted counting backwards from three and saying 'Ignition'. For all its contrived banality, Armstrong's 'small step' is in every dictionary of quotations, and Andrew Smith is of the remarkable opinion that the First Sentence is 'one of the most memorable lines ever offered the English language' and 'as famous as anything Shakespeare wrote'.

Of the 12 Moon-walkers, only Schmitt was a scientist, and none of them was – at least at the time – a priest, poet or philosopher. Of course, the reasons for sending pilots on the Apollo missions – many of them test-pilots with the rightest of Right Stuff – are obvious. Although the comparative lack of hands-on control led some astronauts to call themselves ‘spam in a can’, these missions called for both the highest order of technical skill and the steeliest of nerves. Aldrin’s pulse-rate at blast-off was only 110 and, within minutes of landing on the Moon, Armstrong’s was down to 90. Al Bean of *Apollo 12* is one of the few to admit experiencing fear. He got scared orbiting the Moon when he saw its curvature and all those craters, but ‘I remember saying to myself, “Well, I can’t do my job scared,” so I’d look in and I’d pay attention to my computer screen, which looked just the same as in the simulator, and I calmed down.’ Fear was put to rest by assimilating stark lunar reality to the familiar artificiality of its simulation. These men were picked to behave just as phlegmatically as they did. They weren’t selected for their emotional sensitivity, the richness of their imagination, or their facility with language. They weren’t sent to think and to feel; Nasa filled every minute of their lunar time with programmed work. Bean now says he regrets not taking time to look around and register his feelings, but there was too much to do: ‘Neil Armstrong’s first thoughts might have been “This is one small step for a man,”’ Bean says, ‘but I remember vividly that after climbing down the ladder and stepping on the lunar surface my first thought was: “We’re twenty minutes behind now and we’ve got to catch up.”’ Charlie Duke of *Apollo 16* was the emotional one: his first lunar sentence was ‘Wow! Wild, man, look at that!’

By current space-shuttle standards, the 12 astronauts who walked on the Moon were a homogeneous bunch: all male, all white, all-American, all but one born between 1930 and 1935. (Alan Shepard, at 48, was by far the oldest at the time of his 1971 *Apollo 14* mission.) All of them except the geologist Schmitt were navy or air force pilots, and even Schmitt became an experienced pilot during the course of his training, logging more than two thousand hours of flying time. Many were sons of high-ranking military officers; remarkably, all were either the eldest child or the first son, and they were – by nature, upbringing and the Apollo training system –

intensely competitive. Each was part of a pool from which only The Best would be selected. It was all about 'getting a mission', especially as it became clear that the programme was going to be curtailed: the last three scheduled missions were cancelled in 1970 because of the costs of the Vietnam War and waning public enthusiasm. It wasn't clear what you had to do to get a mission, other than be very good at your work. Some astronauts politicked hard and made themselves seriously unpopular with their colleagues. Most realised that selection probably meant striking the right balance between daring and foolhardiness, between following the rules and showing an ability to improvise.

Despite the vast attention paid to the astronauts' psychological profiles and their ability to work in teams, the *Apollo 11* crew verged on the dysfunctional. While Armstrong and Aldrin didn't quite match Stoppard's Scott and Oates, there was a fierce behind-the-scenes battle between them to be first to set foot on the Moon. Early plans were for Aldrin, as module pilot, to step out first, but one version reported by Smith has it that Armstrong, as mission commander, lobbied more vigorously than Aldrin, and Nasa backed him up because he would be 'better equipped to handle the clamour when he got back' and, more mundanely, because his seat in the lunar module was closer to the door. Aldrin paid Armstrong back by taking no photographs of him on the Moon: the only manually taken lunar image of the First Man on the Moon is in one of many pictures Armstrong snapped of Aldrin, showing himself reflected in the visor of Aldrin's spacesuit. Asked about this omission later, Aldrin lamely replied: 'My fault, perhaps, but we had never simulated this in training.' Later, Aldrin put it about that Armstrong's First Sentence might have been a bureaucratic concoction.

Getting there and getting back were hard, but that's what the Moon Men were trained for. Nothing, however, prepared them for what came afterwards, and this is where *Moondust* takes up the story. Smith interviewed as many of the Moon Men, and a few other Apollo astronauts, as were willing to talk to him, though David Scott of *Apollo 15* has become a recluse, Armstrong doesn't do interviews, and while John Young of *Apollo 16* made a speech at Smith, both eye and

mind contact seemed impossible for him. None of them found celebrity easy, least of all the crew of *Apollo 11*, for whom there were no predecessors to show them how it was done. Caught between a celestial rock and a hard place, it was clear that there was little future for them as astronauts and they possessed no other obvious marketable skills, save their celebrity, for the management of which they had no training at all. They were world famous but they were on the same basic pay rates as other US military officers: most were captains, making about \$17,000 a year. (On their missions to the Moon, they were entitled only to the standard \$8 per diem for being away from base, with deductions for 'accommodation' provided in the spaceship.)

And so, at the most mundane level, all were faced with problems of re-entry into the civilian economy. Only Young was still working for Nasa when the interviews for *Moondust* were done. He retired at the end of 2004, while his Nasa web bio promises that 'he will continue to advocate the development of the technologies that will allow us to live and work on the Moon and Mars. Those technologies over the long (or short) haul will save civilisation on Earth.' Others cashed in any way they could. Some sold real estate; some went into business (beer distribution, insurance, cable TV, small airlines, tugboats, a minor oil company); some consulted for TV shows and movies dealing with space travel; one or two took on the role of salesmen for the commercial potential of further lunar exploration, including visionary schemes for mining lunar platinum and building Moon-based helium-3 nuclear fusion plants to solve the terrestrial energy crisis. Armstrong held a university position in aerospace engineering during the 1970s, and Schmitt served one term as a Republican senator from New Mexico. Many were sought after as corporate front men, doing nothing more specific than lending their names to whatever business it was whose customers might want to meet a Moon Man. Dick Gordon, the command module pilot of *Apollo 12*, was briefly executive vice-president of an American football team, before moving on to a miscellany of other business positions. In such capacities, as one of them put it, the astronauts were serving as little more than 'table decoration'.

There was, of course, a series of 'as told to' books, and there was public speaking, though none of the Moon Men seems to have enjoyed it or was much good at it, and Armstrong and Young are Mogadon Men of the highest order. There are fees for appearances at *Star Trek* conventions, where the TV actors tend to draw bigger crowds than the real thing. Autographs bring in a reliable stream of revenue for the majority of astronauts willing to meet the demand. Armstrong stopped signing about ten years ago, so his are scarce and expensive. Personal autograph fees range from about \$20 to much more than that for signatures on rare documents or autographs that complete an Apollo set. An 'authenticated' signed Neil Armstrong photograph retails online at \$2495, while bidding for either a Charlie Duke or an Al Bean autographed postcard on eBay starts as low as \$19.99. There is a sad-making account in *Moon dust* of Gordon sitting practically alone at his signing-table at a Trekkie convention in Las Vegas. Why does he do it? 'Oh, I enjoy getting out and meeting people. It gives me something to do.' David Scott got in serious trouble when he surreptitiously packed several hundred 'first-day cover' envelopes in his lunar module for future personal sale by the crew (to help finance their children's education), and there have been allegations about 'questionable' business activities associated with others.

The problem of what to do next was not just financial. For such highly competitive alpha-males nothing else could challenge them; nothing else could top what they had achieved, in most cases, when they were in their late thirties. As Bill Anders, of the *Apollo 8* circumlunar mission put it:

I mean, we were *rock stars*. It was like being a rock star who's suddenly had his vocal cords pulled out. Unfortunately, the bulk of the astronaut group . . . they're kind of struggling . . . A few of us went out and got real jobs, but most came back and found that they were curiosities and celebrities, but that there wasn't much future in being an ageing celebrity. It's sad, but probably inevitable.

After their missions were over, there was depression, alcoholism, drug abuse, wife and child abuse. Divorce was the norm. Some

divorces followed hard on return from the Moon; Young's occurred before his flight. Rock-star celebrity brought the usual number of groupies and some of the wives were already on the edge because of what they had to put up with during their husbands' extended training and the mission itself. (Astronauts, Smith notes, could not get life insurance, so when they decided to accept risks for themselves they decided for their families too.)

The one thing they could do was answer questions. The questions come in three sorts, of which the first is: how did you go to the toilet? The answer is easy; the process was not. On early flights you pissed into a condom that was connected by a hose and valve to outer space. To defecate you got completely naked and, as Smith describes it, you 'positioned a special plastic bag as best you could, and *went*, hoping that everything went in'. Sometimes everything did not go in, and then you might have to chase the turds round the spacecraft for hours. The whole business cramped your style. Anders admits to setting 'the world's longest distance no-bowel-movement record . . . three-quarters of a million miles! Everything was looking a little brownish to me when I got home.' The combination of space food and stress was not good for the digestion. Young forgot to turn his microphone off when he complained to his colleague: 'I got the farts agin. I got 'em agin, Charlie.'

The second type of question comes from the other end of the spectrum: what did it feel like? How did it change you? What did you learn from it? Some of the Moon Men didn't have the ability to answer. Some didn't want to or eventually got bored with being asked. One or two, incredibly, said it had never occurred to them to consider what they had learned from walking on the Moon. Many indeed were massively inarticulate, but one should be careful about inferring the absence of feeling from an incapacity to articulate feeling, or the absence of intense or special feeling from the banality of its expression. Wittgenstein's *Tractatus* can't have been popular reading in these circles. Al Bean acknowledged a real responsibility to answer these questions, and, since he couldn't do so in language, he became a painter: one of his better sub-kitsch Space Impressionist efforts is a charmingly cheerful creation which he calls *That's How It*

Felt to Walk on the Moon.

For other astronauts, responses fell within the expected range for contemporary American culture. Some heard the Voice of God on the Moon; still others were prompted to accept Jesus in their lives; one became a Zen Buddhist; another remains actively involved with a secular New Age institute for the exploration of paranormal phenomena. Some said that they understood for the first time what a small, beautiful, precious and endangered planet it is that we live on, but a lot of people who didn't go to the Moon believe that. Some said the experience made them feel small, but, then, most of us already feel that way, and the remark has to be weighed against the enormous size of the typical astronautical ego. Some fiercely deny having had a lunar epiphany; others equally vehemently insist they did, but the reported epiphanies were of many different types. The most convincing summary of what their experience did to them comes from Bean, who said that the Moon Men came back 'more like they already were'.

In *Jumpers*, Stoppard gives Dorothy Moore a speech that talks about putting men on the Moon as the definitive Copernican moment:

Well, it's all over now. Not only are we no longer the still centre of God's universe, we're not even uniquely graced by his footprint in man's image . . . Man is on the Moon, his feet on solid ground, and he has seen us whole, all in one go, *little – local* . . . and all our absolutes, the thou-shalts and the thou-shalt-nots that seemed to be the very condition of our existence, how did *they* look to two Moon Men with a single neck to save between them? Like the local customs of another place.

Once we saw the locality of our Earth, and so of its mores, there would be 'such gnashing of unclean meats, such coveting of neighbours' oxen and knowing of neighbours' wives' as never before. Dorothy was wrong about that: 12 men have walked on the Moon and, if the newspapers are any guide, moral absolutism is thriving. And she was wrong about Moon-walking as a cause of the moral relativism that both she and George Moore, in their different ways, so feared: 'The truths that have been taken on trust, they've never had edges before, there was no vantage point to stand on and see where

they stopped.’ But just as Dorothy did not envisage the persisting grip of absolutism, so she did not appreciate the corrosive power of lay refusal to take inconvenient truths on trust. The Copernican moment for ‘humanity’ depended on trust – trust in the astronauts and their masters.

And so the third sort of question to which the surviving Moon Men have continually to respond is whether the landings ever really happened at all, whether the whole thing wasn’t an elaborate government hoax: \$24 billion to manufacture an illusion. Moon-landing denial, you should understand, is a major cultural industry, possibly with an even greater American following than Holocaust denial. The day that Smith was supposed to interview Buzz Aldrin in Los Angeles the astronaut was approached by a man who shoved a Bible in his face and demanded that he place his right hand on the holy book and swear that he had really gone to the Moon. Aldrin’s response didn’t require a command of evocative language: he punched the sceptic on the chin.

Steven Shapin teaches at Harvard and has written several books on the history of early modern science. His next will be *The Life of Science: A Moral History of a Late Modern Vocation*.

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