



# APOLLO 11

50 years on  
OTVA remembers



CSIRO's Parkes radio telescope in 1969, around the time of the Apollo 11 Moon landing.

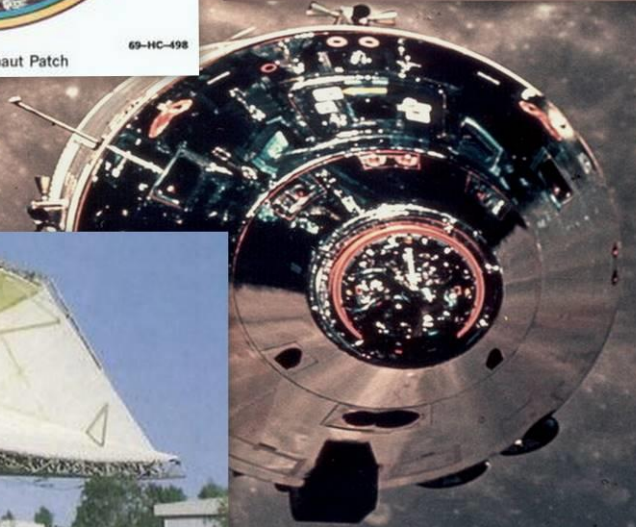


Astronaut Patch

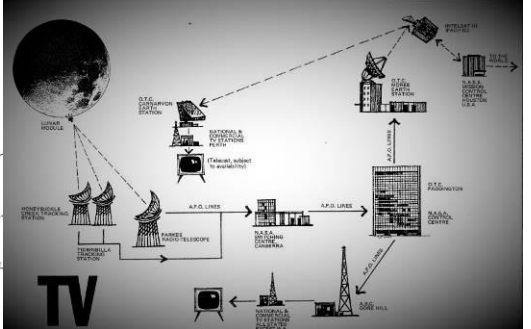
69-HC-498



Plaque left on the Moon, July 20, 1969



**DTC PROVIDES VITAL LINKS WITH HOME FOR THE 'MOON MEN'**  
DTC provides about 80% of the international communications links to the moon's hemisphere orbit. They keep the astronauts in touch with their families and the ground stations. They also provide data and telemetry from the moon's surface to the ground stations in the U.S.A. via DTC earth stations at Canberra and House of the DTC Coastal Cable Facility.



# Overseas Telecommunications Veterans Association (Australia)



*Bringing generations of communications professionals together...*

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Coming Events (Please RSVP 1-2 weeks prior)

- AGM Thursday 13 June 11am – Anzac Room, with lectern/PA with seating for about 30, and then about 12.30pm Podium, Red Room.
- Spring reunion Thursday 26 September - Buffet lunch at 12.30pm in the Red Room, Level 1, at 99OnYork (Bowlers Club), 99 York St, Sydney. Pay on entry.
- Pre-Christmas Reunion Thursday 28<sup>th</sup> November – Bistro lunch at 12:30pm in a function room on level 2, 99OnYork (Bowlers Club), 99 York St, Sydney.

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## Message from the President

Fellow Members of the OTVA



As we fast approach the Annual General Meeting of the OVA, your committee wishes you well and thanks you for your support over the past 12 months without which the OTVA cannot survive with any level of relevance and credibility.

**APOLLO 11 50<sup>th</sup> ANNIVERSARY CELEBRATIONS:** Your committee thanks Jim Simpson for the work he is doing on behalf of the OTVA in respect of the celebrations to commemorate the 50<sup>th</sup> Anniversary of the Landing on the Moon by members of the crew of Apollo 11 on 20 July 1969. Jim has been working with key stakeholders from NASA, Parkes and other organisations to appropriately recognise the significance of the role played by OTC and its staff in the success of the Apollo 11 Mission as well as the significance of the mission itself. Many of you have submitted your recollections of that time in OTC's history all of which have been included in this issue of the OTVA Newsletter. We thank you for your contributions.

**NEWSLETTER EDITOR:** Mick Callaghan has been doing an excellent job as Newsletter Editor since taking on the role in June 2017 with the help of several members who have written some very interesting stories about the events and people that made OTC such a great place in which to work.

**VACANT POSITION:** Although Mick will be nominating for a committee position at the upcoming AGM he has given notice that can no longer perform the role of Newsletter Editor. We thank him for his efforts as Editor and seek a replacement from you, our members. Mick will still be available from the sideline to provide support and advice to the new Editor. Without an editor who can promote your stories through the OTVA Newsletter it cannot continue in its current form and our ability to promote the contribution made by OTC and its staff to the history of communications in Australia may be lost.

**REMEMBER:** Those of you who submit stories that are judged by your committee to be the most interesting will win \$50 for their contribution. Please write down your thoughts and stories and submit them for inclusion in future newsletters.

**OTVA FINANCIAL VIABILITY:** Thanks to our Treasurer, Robin Tuckfield, the outgoing Committee and you the members who continue to support the OTVA for the sound financial position in which we currently find ourselves.

**OTVA WEB SITE:** The OTVA web site (<http://www.otva.com>) continues to promote the OTVA and based upon the 'hits' that it receives each month is still a relevant source of information and interesting stories. Please have a look at the website and review the content for yourselves. The Committee is considering moving more of the content currently being circulated via the newsletter and the emails to the web site. Please email me at [president@otva.com](mailto:president@otva.com) with your reaction to this suggestion and any other suggestions for improvement.

**MEMBER WELFARE:** At this time of the year we reflect on those of our membership who may have health problems or fallen on hard times and need our help through either the giving of our time or physical support or even just a friendly ear to listen and/or reminisce for an hour or two. If you know any of our members that might fall into that category please email me at [president@otva.com](mailto:president@otva.com) and your Committee will see what can be done in response.

**VALE:** Please take some time to reflect upon those of our fellowship who passed away in the past 12 months and the impact that may have had on our lives. Their names and stories can be found on the OTVA BLOG (<http://www.otva.com>) by filtering on VALE at the bottom left of the HOME page. May They Rest In Peace.

Warmest regards,  
Peter Bull  
0411 260542  
[president@otva.com](mailto:president@otva.com)

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## Editor's Note.

The 50<sup>th</sup> Anniversary of the Apollo 11 Space Mission and OTC's involvement is celebrated in this newsletter. Several OTVA members have contributed their stories and memories of where they were and what they were doing at that time. I don't remember what I did yesterday let alone 50 years ago so I have left the memories alone and presented them as received from members; I may have corrected the odd spelling mistake or two. Actually I was a naive 19 year old on his first Engineering branch away job on Thursday Island, only returning on the 8<sup>th</sup> August to be a groomsman at my eldest brother's wedding.

I love John Hibbard's ingenuity, very Australian; and Al Hennessy's laid back approach.

Apollo 11 was launched aboard a Saturn 5 rocket on July 16, 1969; at 09:32 EDT  
The Lunar Module (Eagle) landed in the Sea of Tranquility on July 20, 1969; at 16:17 EDT  
Armstrong (and 20 mins later Aldrin) stepped onto the moon surface on July 20, 1969; at 23:14 EDT  
The Command Module splashed down in the North Pacific Ocean on July 24, 1969; at 12:50 EDT

### **AEST adjusted times**

Launched: July 16, 1969; at 23:32 AEST  
Landed: July 21, 1969; at 06:17 AEST  
Walked: July 21, 1969; at 13:14 AEST  
Returned: July 25, 1969; at 02:50 AEST

For comprehensive details visit the NASA website at the following link  
[https://www.nasa.gov/mission\\_pages/apollo/missions/apollo11.html](https://www.nasa.gov/mission_pages/apollo/missions/apollo11.html)

With the upcoming AGM please don't forget that all Life Member nominations are to be submitted to the secretary no less than 21 days prior to the AGM; and that all nominations for Committee Members are encouraged prior to the AGM but will be accepted on the day.

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# Australia played an important role in the Apollo 11 Moon Landing.

Jim Simpson

- CSIRO's Radio-telescope at Parkes became the prime station for signals from the Moon.
- Terrestrial links from Parkes and Canberra.
- Tracking stations at Tidbinbilla and Honeysuckle Creek in the ACT.
- Satellite Earth Stations at Moree NSW and Carnarvon WA.
- HF Radio facilities at Bringelly and Doonside, NSW.
- International Telecommunication Gateway Exchange at Paddington NSW where NASA were assigned a special operating and control centre in the building. This centre was staffed by NASA's own personnel with Keith Vincent the only OTC staff member allowed there.
- All TV & Audio signals to and from the moon were routed via 'Sydney Video' to the rest of the world via the OTC Moree Satellite Earth Station.

## Microwave links from the Parkes Radio Telescope to Sydney for Apollo 11, July 1969



Jim Simpson is negotiating with the OTVA and Telstra to place a plaque on the wall of the Paddington Terminal similar to the COMPAC plaque (left).

The central wording will most likely be:

“On 21st July 1969, the world saw the Apollo 11 Moonwalk & heard Neil Armstrong’s famous ‘first words’ through NASA’s Sydney Video Control centre in this building relaying live TV from the Moon by Australian tracking stations”

Jim is also working with a group of mainly Ex-Apollo workers – ex Engineers, Technicians and Managers who have formed a committee to organise celebrations for the 50th Anniversary of mankind's first steps on our moon. To find out all the details follow the link below.

<https://apollo11anniversary.jsaxon.org/>



Join space trackers from Honeysuckle Creek and Tidbinbilla Tracking Stations, as well as enthusiasts from across Australia, and from around the world, in celebrating Australia's key role in the first manned lunar landing. For details, see



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# Ministerial Press Release

No 35

525

FOR PRESS

CANBERRA, 22<sup>nd</sup> July. 1969

## “MAGNIFICENT AUSTRALIAN SUPPORT OF APOLLO 11”

(Statement by the Minister for Supply, Senator Ken Anderson)

“Australian-staffed stations had performed magnificently in bringing yesterday’s historic Apollo 11 telecast to the world and in communicating with the three astronauts.”

The minister for Supply, Senator Ken Anderson, said this in Canberra today (July 22).

He said: “All Australians can be proud of the Apollo 11 role played by the tracking stations at Carnarvon, Honeysuckle Creek and Tidbinbilla and by the CSIRO's 210-ft. radio telescope at Parkes.”

(The three tracking stations are managed by the department of Supply on behalf of NASA. The Department provides the Station Directors and the contractors at the stations are Amalgamated Wireless Australasia Ltd., Standard Telephones and Cables Pty. Ltd. and SpaceTrack Pty. Ltd., a subsidiary of Hawker de Havilland Australia Pty. Ltd.)

The Minister said: “Equally important was the part played by the NASA Communications Center at Deakin (Canberra), which is staffed by my Department.

“I wish to thank all staff members at these facilities for their complete dedication and their wonderful response during yesterday's critical phases.”

“The support of the Australian Post Office and of the Overseas Telecommunications Commission (Australia), by supplying the communication links with the U.S., has also been a great contribution to the Apollo 11 flight.”

“The Australian Broadcasting Commission and the Federation of Australian Commercial Television Stations combined to furnish back-up outside-broadcast links, some of which carried the actual Apollo 11 TV signals.”

“Yesterday from 12.51 – 1.02 p.m. both Honeysuckle Creek and Goldstone (U.S.) received the Apollo 11 telecast from the surface of the moon.”

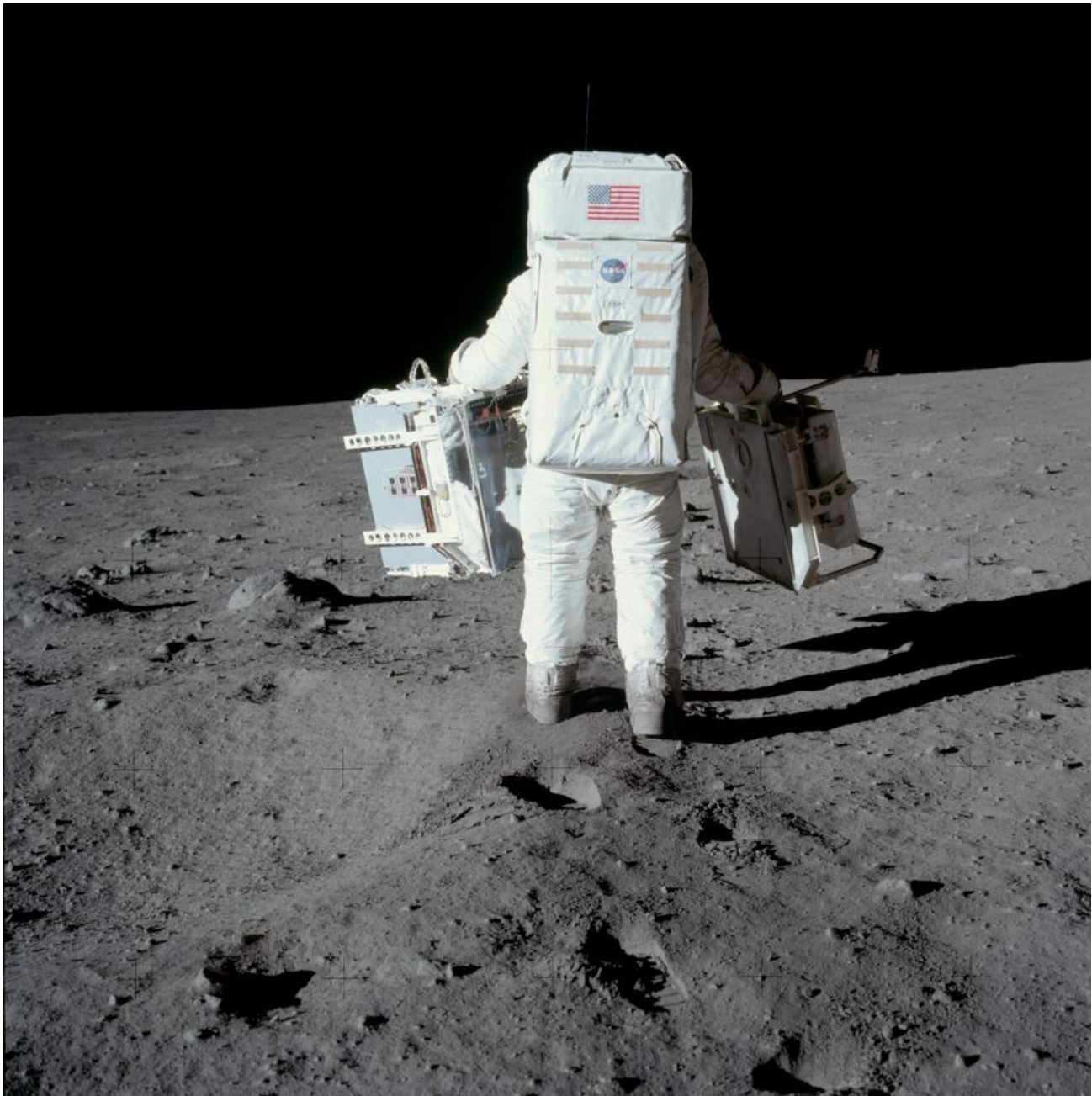
Both stations fed the signals to the Mission Control Center at Houston, Texas, U.S., from which they were relayed via satellite to the world TV pool (Honeysuckle's signals were split off in Sydney for direct transmission to Australian TV stations).”

“This period included Neil Armstrong's first step on the moon at 12 hrs. 56 min. 20 sec.”

“From 1.02 p.m., until the end of the transmission at 5.57 p.m. the world saw the Apollo 11 telecast via Parkes (its video signals were also split off in Sydney for direct relay to Australian TV networks).”

“For several hours during crucial phases yesterday, Honeysuckle Creek and Tidbinbilla had voice and telemetry contact with one or both of the Apollo 11 spacecraft.”

“In addition, Carnarvon sent commands to two scientific experiments (EASEP) which Armstrong and Aldrin placed on the lunar surface during their walk.”



On Apollo 11, Buzz Aldrin simply carried the EASEP to the deployment site by using handles. This is different from the carry bar used on later missions.

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## Sydney Morning Herald

- TECHNOLOGY
- SCIENCE

Clearer pictures of man on the moon, via The Sun

<https://www.smh.com.au/technology/clearer-pictures-of-man-on-the-moon-via-the-sun-20090719-dpl1.html>

By Richard Macey

20 July 2009

When *Neil Armstrong & Buzz Aldrin* stepped into history that July day in 1969, Barry Gilmour was there to shoot the dramatic pictures.

Gilmour was not an Apollo 11 astronaut on the moon, but an earthbound Fairfax photographer assigned to record the event for the world's newspapers.

**NASA Sydney Video - OTC Paddington Intl Gateway 20th July 1969 & Bob Goodman SMH.docx**



Moon mission ... Barry Gilmour (bending over, left) and the history he helped capture.

Photo: Bob Goodman/NASA

NASA's television pictures, streaming down from the Sea of Tranquillity to the Parkes radio-telescope in western NSW, were not in a format that could be used by commercial TV networks.

The space agency employed a "slow scan" format that produced 10 frames a second, generating 320 lines on TV screens. Commercial television channels used 30 frames a second, with 525 lines.

To solve the compatibility problem technicians came up with a crude but effective solution, says John Sarkissian, a CSIRO operations scientist at the Dish.

The pictures received at Parkes were beamed to the Overseas Telecommunications Commission (OTC) centre in Oxford Street, Paddington, NSW, Australia & displayed on a television screen. A commercial television camera, mounted in front of the screen, captured the images and relayed them to viewers around the globe.

While the technique worked, says Mr Sarkissian, the re-broadcasted images were not as sharp as the originals seen in Paddington. That provided an extraordinary opportunity for Sydney's newspapers to play a role in the historic moment.

NASA also set up three tiny 18-centimetre TV monitors, each taking a feed directly from the Parkes transmissions, in the Paddington building. Two afternoon newspapers - Fairfax's The Sun, and News Limited's Daily Mirror, were each invited to send a photographer to take still pictures from the screens. The Sun dispatched Gilmour. "We photographed everything [the astronauts] did," he recalled. "There was a lot of concentration because you didn't want to miss anything."

Gilmour used a box-shaped Mamiya, a camera with a view finder in the top that used 2 ¼-inch negatives.

"In view of the urgency of the first few pictures," NASA's rules for the arrangement said, the exposed film had to be rushed for processing by a waiting fleet of cars to the Mirror's darkrooms in Surry Hills.

Once developed, the pictures were loaded on to picturegram machines and transmitted via the wire agencies AAP and UPI to newspapers around the globe.

Mr Sarkissian said the shooting of stills from screens showing the original NASA format images meant the world's newspaper readers enjoyed pictures significantly clearer than those seen by television viewers.

Back at the OTC centre, the photographers quickly reloaded their cameras and resumed shooting the ghostly figures.

When the moon walk was over, officials at the OTC centre celebrated with free drinks. "It was the first time they had alcohol on the premises," Gilmour said. "We certainly earned our beer."



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## John Eades

### Memories of working at OTC Moree SES during the 1969 moon landing

Moree Champion

Sophie Harris

It was July 21, 1969.

A young John Eades had only recently moved to Moree to work at his first satellite earth station posting as a senior technician at Moree's Overseas Telecommunications Commission (OTC) facility. As luck would have it, the then 26-year-old was one of a handful of technicians rostered on to work that day – the day Apollo 11 was due to land on the moon.

"It was the way the roster panned out; it was a case that I happened to be rostered on the day the moon landing took place," Mr Eades said.

"We were all aware this was coming up for days, even weeks beforehand as we were making absolute certain that everything in that station was in first class operational order."

While millions of people gathered around television sets to watch on as Neil Armstrong took his first step on the moon, declaring, "That's one small step for man, one giant leap for mankind", the Moree OTC satellite earth station was busy transmitting that vision to the world.

Mr Eades was one of about four technicians working in the control room at the time.

"I was involved in the setting up of the TV monitors," he said.

"I remember standing there during the actual moon landing and I remember the picture, which was black and white of course, being very grainy."

Mr Eades, along with the rest of the Moree station and other sites involved in the transmission, was seeing the vision slightly ahead of the rest of the world.

The footage was being received by two tracking stations in Australia – CSIRO's Parkes Radio Telescope and the Honeysuckle Creek tracking station outside Canberra – which relayed the signals to the OTC control centre in Paddington, Sydney.

The video and audio was then fed from Paddington to the Moree station from which it was transmitted to Mission Control at Houston via the Intelsat III Pacific satellite.

"We fed that up to the satellite and they received it back in the US".

"Houston saw the information first before it was released to the world. What we fed up was only for us to see, and Honeysuckle and Paddington. If anything had gone wrong, they didn't want to transmit that to the world.

"There was around a two second delay before the information was received by the US and Houston. Houston looked at it and they turned the video cast around and sent it back to the earth station in Jamesburg, on the west coast of the US. They transmitted it and the information was received by the world."

The vision was then sent back to Paddington, via Moree, before being fed to the Australian television networks.

Mr Eades said being a part of that significant moment in history was something he'll never forget.

"It was a momentous occasion – you don't forget it," he said.

"The significance is even more so now when you can say to people, 'I was one of the people involved from a technical point of view'."

The 1969 moon landing was by far the most significant event that Moree's OTC station was a part of during Mr Eades' four years in Moree.

For the full story follow this link

<https://www.moreechampion.com.au/story/5308177/a-part-of-moon-landing-history-photos/>

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## John Vossen

### Moon Landing July 21<sup>st</sup> at OTC (A Personal View)

Apollo 11 was the spaceflight that landed the first two people on the Moon. Commander Neil Armstrong and lunar module pilot Buzz Aldrin, both American, landed the Apollo Lunar Module *Eagle* on July 20, 1969, at 20:17 UTC. Armstrong became the first person to step onto the lunar surface six hours later on July 21 at 02:56:15 UTC; Aldrin joined him 19 minutes later. They spent about 2.25 hours together outside the spacecraft, and collected 47.5 pounds (21.5 kg) of lunar material to bring back to Earth. Command module pilot Michael Collins flew the command module *Columbia* alone in lunar orbit while they were on the Moon's surface. Armstrong and Aldrin spent 21.5 hours on the lunar surface before re-joining *Columbia* in lunar orbit.

Armstrong's first step onto the lunar surface was broadcast on live TV to a worldwide audience. He described the event as "one small step for [a] man, one giant leap for mankind."<sup>[7]</sup> Apollo 11 effectively ended the Space Race and fulfilled a national goal proposed in 1961 by President John F. Kennedy.

During the 1960's USA general election campaign phases of President John F Kennedy (aka JFK) I was in the second year High School and we studied the election in detail as part of our "Social Studies" subject all that year. It was with great interest and awe when JFK made the speech in 1961 which in part mentioned "before this decade is out, of landing a man on the Moon and returning him safely to the Earth".

Jump forward just eight years to 1968 to where I had been "permanently seconded" to OTC from PMG. The purpose of the change was the fascination with the opportunity to work at the new OTC Moree Earth station as advertised in the Sydney Morning Herald. However the interview panel suggested being better suited to "Cable Maintenance" due to the Sydney Melbourne Coaxial cable experience. Monday the 21<sup>st</sup> of July 1969 started with a 4 am alarm rise, at home, and the listening to the TV description of the NASA broadcast feed of the Lunar Excursion Module (LEM) landing on the moon. Around the world there must have been a massive sigh of relief when the LEM had a successful touch down. "The Eagle has landed".

I was rostered on at the Paddington ITMC for the 7am to 3pm shift that day. The ITMC roster on Mondays was a 3 man roster (normally 4 man shifts, but Sunday in the USA, made it one man short) being then shift supervisor (John Grosbard), TO1A (Geoff Godfrey) and TO1 (myself). Tradition had the TO1 do the programme (for want of a better word) room duties.

By this stage the NASA crew had setup "shop" toward the back of the "new building extension" and since the Press were to attend, via the back carpark stairs, at some point, some large tarpaulins had been hung from the ceiling to divide the ITMC programme racks and operations area from the NASA area. The NASA crew had activated a rather large "Slow Scan TV Decoding" unit which allowed the TV signals from the Moon/LEM to be translated to "normal" television. Setting up this decoding "box" (about the size of a large refrigerator) had had its issues, (see below). The NASA box had, via a TV switch, 2 live inputs. One was from the Parkes Deep Space Telescope and a backup from Honeysuckle Creek (ACT).

Locally I checked out the usual set up with "Pulse and Bar" to Moree and the Split to the ABC, verified the links were in place and connected the output from the NASA Decoding unit to TV distribution Amp. The ABC was to distribute the broadcast nationally with Moree to transmit via the Pacific Intelsat Satellite to Jamesburg on the east coast USA for delivery onward to the Houston Space Control Centre and the rest of the world.

As it turned out the moon walk had actually been brought forward at Neil Armstrong's request, which meant that the Parkes Telescope had not quite acquired the moon and Parkes dish was on the end stop. This together with high westerly winds was giving the large dish no end of trouble.

However just in time Parkes did acquire the signal from the moon but it was of poor quality so when Armstrong started to descend the LEM ladder the signal was actually from Honeysuckle Creek. A few

minutes later the Parkes signal improved “dramatically” and surpassed that from the smaller dish at Honeysuckle Creek and the NASA team switched to the Parkes signal for the rest of the broadcast.

Jump back a few weeks to the arrival of the decoding unit and the NASA team. One of the team, in haste and unknown to any OTC staff had cut off the 110 volt plug and had procured a 240 volt plug (at Isenberg’s Hardware, adjacent to the OTC Terminal) and plugged the unit into a wall socket. A loud bang and puff of smoke ensured the power supply was at “end of life”. A new power supply was flown in from the United States; however Engineering Branch still had the issue of: where do we find the 110 volts at 60 hertz. It was Kerry Kearney and a few other ingenious souls who devised a plan to run a suitable generator via a variac and motor off the 50 Volt batteries; all attached to a builder’s plank, in the basement, to supply the power for the unit up 2 floors.

When Armstrong first set foot on the moon I was standing up in front of the B&W monitor of the end Programme Rack of the ITMC 1st floor Paddington, on my own.

Geoff Godfrey and I were on shift during Apollo 11 and we were also on the nightshift when the explosion on Apollo 13 occurred. We usually listened to the NASA world feed, which was usually quite active during our night-time; being day hours in the USA. This feed went dead soon after that event. However we were able to listen to the live feed via the GDA circuits (red links on the channel racks). The power supply was the most disconcerting issue but it was kept fairly hush hush to protect the guilty. I do remember the endless periods of delay equalisation of the analogue data circuits required for NASA and other customers. The visit of the Apollo astronauts to the terminal many years later was a memorable moment. The visitors gave us some original photographs of the space mission.



Earth Rise

Moon Crater



### **Other Notes.**

The Parkes Observatory is a radio telescope observatory, located 20 kilometres north of the town of Parkes, New South Wales, Australia. It was one of several radio antennae used to receive live, televised images of the Apollo 11 moon landing on 21st July 1969.

The *Parkes radio telescope* is an icon of Australian science. Its large dish surface makes the *telescope* very sensitive and it is ideally suited to finding pulsars, rapidly spinning neutron stars the size of a small city. Half of the more than 2000 known pulsars have been found using the *Parkes telescope*.

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## John Hibbard

I was working for the PMG's Department as a Grade 2 Engineer in Country Installation #3 located on the 6<sup>th</sup> floor of Pacific House, 300 Pitt St, Sydney. On the day of the landing, the office had been rearranged with several TV screens as everyone prepared for spending the time from noon watching the landing. We were all very excited.

Around 10am, my Divisional Engineer, George Maher, called me to his office to advise me that a team of 3 Japanese engineers were visiting with the purpose of inspecting some Japanese equipment which had recently been installed in Blacktown Exchange. I had been "selected" to take them out to Blacktown. You can imagine my disappointment. I sought to get the visit delayed but to no avail. The visitors had a tight program.

So around 11.30am I bundled them into the car and headed for Blacktown. I desperately wanted to see the landing and had no expectation there would be a TV at the Blacktown exchange. So I took an "executive" decision. It was coming on lunchtime so I headed for the Prospect Hotel on the pretence of a having a bite and a drink. The visitors who were seemingly uninterested or unaware of the impending landing were not excited about my move. But I was going to see the landing and I had the keys of the car. So we set ourselves up in the Prospect pub and had a counter lunch. I shouted them beers to stretch out the lunch in front of small black and white TV. The pictures were coming courtesy of OTC and given that only a few years earlier, we had had the first international telecast, I was unbelievably impressed that we could get pictures from the moon. I remember that it took quite an extended period for the landing to occur and my visitors were getting restless. But tough, why did they come on this particular day!

Eventually around 2.30pm as I recall, with the landing completed we trooped off to Blacktown exchange much later than scheduled where they saw the equipment and then I drove them back to their hotel in the city. So I got to see the landing, albeit not at originally planned venue.

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## Allan Hennessy

Yes it is now 50 years since I assisted the NASA group to set up their series of audio links at Paddington. They needed 110 volts, we had 240, so there had to be a suitable installation to meet their needs. John Hodson was looking after the video link up one level at the time if I recall correctly.

There seemed to be a need for two separate paths; I guess in case one fell over.

It went well so we just got on with other work. All too easy; a lot to do about what was considered to be nothing; just another job at the time.

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## Al Salmon

My late finish at Thursday Island caused the start of my next project at Ceduna to be delayed so my family were quickly packed and on the road to Ceduna, driving so that my wife would not be there with two kids for 4+ months without transport. The crew arrived the day before me, but SM. Henry Cranfield had them transported to their Motel lodgings so we were all ready to start early next day. My family and I were accommodated in a spare D.C.A. house which was much appreciated. As we got stuck into the installing and cabling of racks of equipment the Moon Landing did not occupy our thoughts much



but as the time got closer there was a buzz in Ops Staff as they prepared for the part they would play, checking audio and video links to other stations.

The day arrived and excitement was growing, late afternoon and early evening station staff and their families were trickling in, kids in PJ's and dressing gowns, the station driveways and grounds not finished so there were some contractors, I had gone home to freshen up, grab a bite to eat and return with my family as soon as possible so as not to miss anything.

There was quite a crowd around the video monitors by the time the landing module touched down and we saw Neil Armstrong climb down the ladder and take a few hopping steps. My daughter then 8yo, remembers it well.

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## Bob Goodman

**My recollections of that momentous day that united the world 50 years ago.**

My position was as the appointed technical officer representing OTC (Australia). OTC was responsible for all leased circuits ie:  $\frac{1}{4}$ ,  $\frac{1}{2}$ , full speed plus voice and AVD as well as the OTC's new milestone product, Satellite TV. Hence, I was a natural fit to take on the role of Coordinator of all NASA's circuits including TV or as Jim Simpson put it, 'OTC's point man for NASA'.

My day started 50-60 hours before the big event, mostly at Paddington with little if any sleep as the adrenalin had already kicked in! Stan Walden (the



man from Trade) was jumping up and down wanting a report every 15 minutes under the threat if I did not comply, he would put me on report. This did not help my concentration and I think it was too much for him.

On this day there were many hundreds of people in the chain working to ensure a successful mission. The build-up of tension really began 48hrs prior to the event with systems checked and rechecked. The MW Video link between Parkes and Houston when not in use was left in "Hot Standby". Systems within the LM were being checked and rechecked by Houston and the Astronauts. The selected press, those who were given a pass to attend OTC Paddington were setting up their cameras. Hire taxis were lining up outside to take the Press photos on film to the Newspapers for developing and then Worldwide distribution. No access was allowed through the front door, the only access was via the 'tradesman's entrance'. The press who were not invited to the party were constantly on the phone asking "What's happening?" The TV networks were checking their feeds to all TV stations Australia wide.

Ed Mason, NASA, with a smile on his face and joking with everyone trying to break the tension. Charley Goodman (no relation) thought he would at any minute have a heart attack.

Charley felt the heavy responsibility of doing his job smoothly. It was his job to select the very best signal from Parkes. Parkes not Tidbinbilla had the clearer picture due to its size compared to Honeysuckle Creek/Tidbinbilla (HSC/T) combined. To help calm him down, we put OTC's Keith Vincent in the chair next to him to act as moral support and his default person should it be needed, this helped and Charlie carried out his part perfectly.

During the telecast, I authorised a split of the video to the ABC for testing purposes ie: converting video 525 to 625 PAL black & white to Graham Sibley's delight. Later I checked with Ed Mason to see if all was OK. 'No problem!' The ABC put this feed to air Australia wide. ABC recorded the programme on the return link from Houston via Moree.

By the time the Lunar Excursion Module (LEM) landed on the moon, the tension was electric, heightened by the problem Parkes was experiencing unseasonable high winds and as a result the Video from the LEM was rather jumpy.

The tension on the floor was further heightened when the Astronauts told NASA Control they did not want to sleep as planned but were starting the EVA now (2 hours earlier than expected). Everything now had to be moved up to accommodate this.

There has been an ongoing argument between HSC/T and Parkes, whose TV picture was used? The landing of Eagle onto the moon's surface was first transmitted from HSC/T and not Parkes. In the photo with me on the phone (see herald article above), you will note I am standing directly behind Charley Goodman with OTC's Keith Vincent (Charlie's default person).

Charley was talking to his Controller in Houston discussing the wind problem. Suddenly the wind dropped. Charley shouted 'I have stable signal from Parkes' – answer 'Send it'. Charley pushed the Parkes button on his console; Australia and the World were now seeing Neil Armstrong descend the stairs, his first step on the lunar surface, via a feed from Parkes. As the photograph shows, I was there! I spent most of this day, talking on the phone simultaneously in a world-wide conference call.

A young OTC Paddington Tech acted the whole time as a switch board operator for me arranging all incoming calls in both conference call mode as well as one on one mode, switching calls jointly and severally as required. Our means of communication was by shouting across the room, he also set up two TV monitors for me via the ITOC

- Outgoing signal to NASA
- Return leg from NASA Houston

In the above mentioned photograph you can see the 2 monitors, the press had setup a tripod and interchanged cameras and film backs to take still photographs of the B/W television screen. There are Roliflex cameras and film packs on the table, this was the only way that photographs could be captured



of the moon landing - taking pictures of the TV screen and then getting the film rush developed for the press/papers.

To make sure the incoming and outgoing feeds were happening, I had a Conference Call between and simultaneously with:

- Howard Schaffler, ATT NY
- Walt Munroe, WUI NY Both TV Carriers of the week
- Murray Grahame, ITT NY
- George Lawler, Comsat / Intelsat
- Henry Cranfield, Moree SES
- NASA Master Control
- Colin Dean, ABC Controller of Programmes HO
- Graham Sibley, ABC Tech/Engineer Gore Hill \*\*
- KDD Tokyo – Dr Itoh, President
- BT London – Derek Hedges

\*\* Standards converter Engineer responsible for 525 lines up to 625 Black & White for distribution to the Australian networks.

I can talk ad infinitum about the above but that's another chapter.

After the event, much jubilation and big smiles all round especially when the celebratory drinks were handed out (I think that was the first-time alcohol had been allowed on the premises) we had all certainly earned that beer!

To sum up – a remarkable achievement by all those involved in the chain which includes not only OTC and Telecom but also the overseas contingent that made it all happen.

A photo included the awards received by myself and also a collective photo left to right are Cyril Vahtrick, Keith Vincent, Ed Mason (NASA), George Maltby MD and Bob Goodman.

I hope the attached document helps. All info Jim has accumulated plus John Sarkissian's paper 'On Eagles Wings' basically covers it all from a Parkes perspective.

The National Aeronautics and Space Administration  
presents the  
**Apollo Achievement Award**  
to

*Robert Walker Goodman*

*In appreciation of dedicated service to the nation as a member of the team which has advanced the nation's capabilities in aeronautics and space and demonstrated them in many outstanding accomplishments culminating in Apollo 11's successful achievement of man's first landing on the moon, July 20, 1969.*



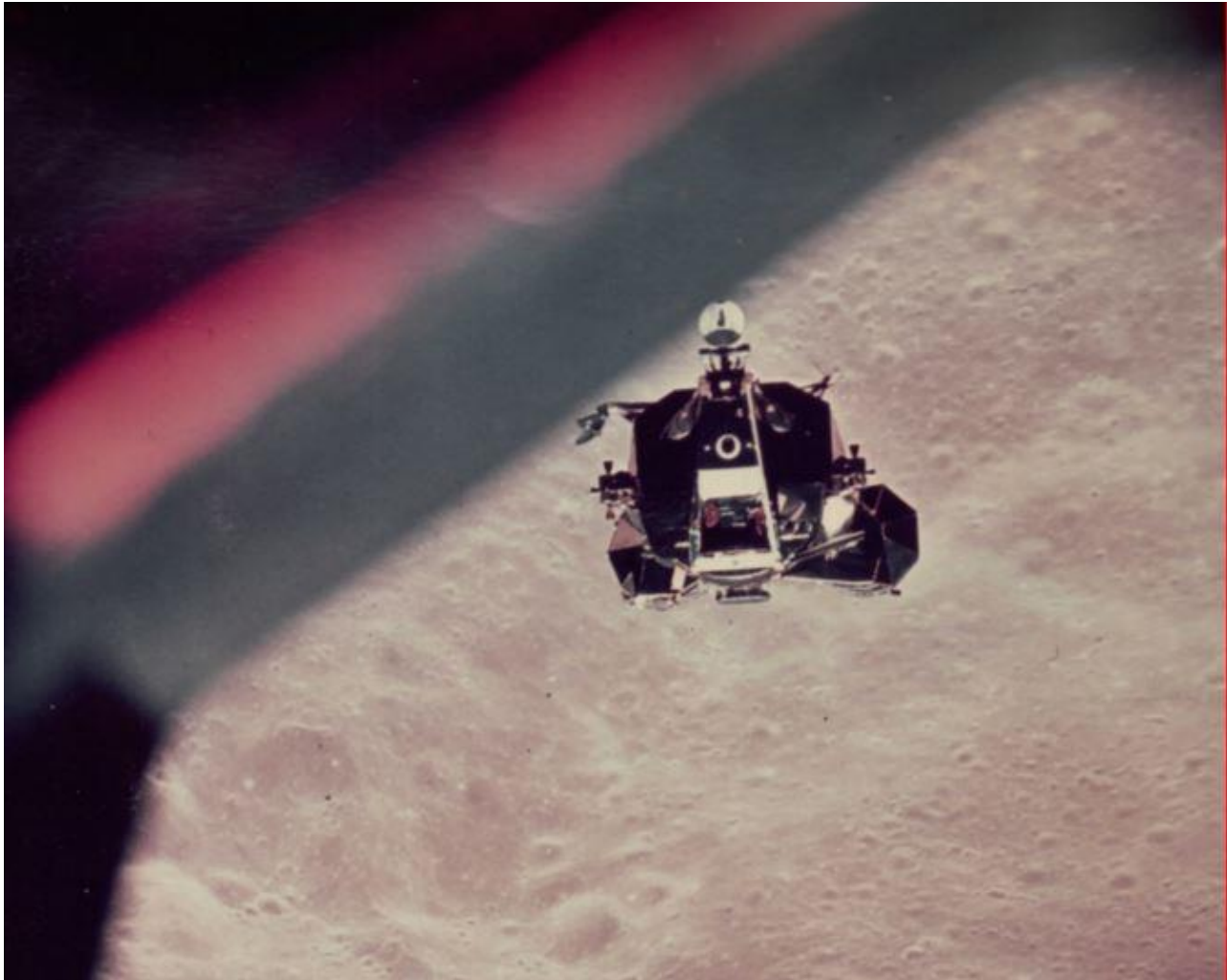
Signed at Washington, D.C.

*W. R. Rains*  
ADMINISTRATOR, NASA

(Back)

## Ian McDonald

At the time of the moon Landing I was working at the Paddington Terminal Program Room , to improve the earthing to meet the NASA video requirements, I got to watch the Landing on the Television monitors live in the Program Room. At the completion of the project NASA gave out a copy of some official NASA photographs to Kerry Kearney to give to OTC Staff involved my name was picked out of a hat so I acquired these photographs. I have attached a copy of these photographs.



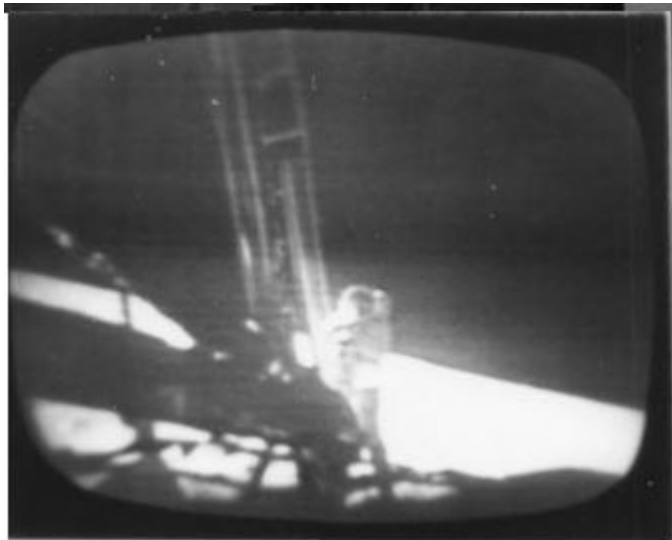
The LEM taken from the Command Module as it descends toward the moon surface.

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## Geoff Oldman

Those with a long memory will remember that I joined OTC in 1963 and left in 1969 to join AWA who had the contract to Maintain and Operate the Carnarvon NASA Tracking Station. I arrived in Carnarvon with my family in mid-July to take up responsibility for the Communications Section which provided all interdepartmental communications, UHF to/from low orbit spacecraft, Tropospheric Scatter Communications System to Geraldton, and some miscellaneous systems such as the Solar Particle Alert Network facilities.

Carnarvon, with only a 9 metre antenna, as compared to the Parkes 64 metre “dish”, was not considered to be able to receive the TV signals from the Lunar Extension Module (LEM), and consequently had not been equipped to take video of the Landing. However, those engineers in Houston and Goddard did not count on the ingenuity of Australian Engineers and Technicians. The “Phantom Receiver” was born, using various pieces of test equipment, signal generators and demodulators which were wired together along a bench in the S Band section. Television of the landing was distributed strategically around the station and to the canteen and common areas. Various local dignitaries, including Wilson Tuckey, of Iron Bar fame (and that’s a story in the mythology of Carnarvon) and staff families were invited to the station and saw the landing real time. The video was a bit snowy but everyone was most impressed.



One year later I had been transferred to Site Engineer S Band when The Phantom Receiver gained some very grateful recognition from NASA. Carnarvon was prime with all four downlink receivers occupied taking data from various LEM craft and one of the other NASA stations went “down” and could not support meaning that data would be lost. Our Operations Supervisor came to me to see if we could do anything. I got my Senior Technical Officer in and we decided that we could have the Phantom Receiver taking data in a few minutes. Houston was notified and immediately came back with the message that as we had only four receivers we could not turn one of our downlinks down to support this extra data stream. We advised that we had an extra “temporary” receiver and we could record the data without impacting our scheduled support. With some scepticism Houston agreed and several days later after they had verified the data Carnarvon received a commendation, although they still did not know how we did it.

There was always considerable competition between the NASA stations to ensure that they could always support and very considerable embarrassment when a station had to report that it could not support. I have to admit that my S Band section was responsible for a “failure to support” only ten minutes before scheduled support on the first pass of an Apollo launch. Very, very embarrassing. I had the Station Director, Company Manager, Operations Supervisor, and the Chief Engineer who was my predecessor as S Band Site Engineer in my section poring over technical drawings and generally getting in the way as we tried to solve the problem. I got p....d of very quickly (I have been told that in my younger days I could be a bit prickly (“fire brand” was the term actually used)) and stormed off to my office. Within two to three minutes my predecessor, now the Chief Engineer, was in my office asking why I was not outside working on solving the problem. I said that I thought there was more than enough brain power working on the job already and that I had decided to do something more useful. He turned around and walked out. One minute later he was back and told me he had got rid of the surplus heavies and that I could get on with it. I did and we reviewed exactly what we had done during pre-mission procedures and what could have happened since. A young engineer confessed that he had changed a card in a piece of equipment. “Had he kept the serial number of the card and could he get it back from stores”. It was reinstalled and pre-pass checks were run successfully so that we were able to

support the second pass, ninety minutes later. Needless to say I was hauled into the Station Manager's office to explain what had happened. I advised that the young engineer had stuffed up; he knew he had stuffed up, and that I was confident he would not do it again. When asked what disciplinary action I proposed I advised that I did not think it was necessary and that it would not achieve anything, which was accepted.

I have noted a couple of the highs and lows of my three years at NASA Carnarvon but there were many more. Overall, I consider it a great privilege to have worked, albeit in a very small way, on what I consider the greatest human adventure since Columbus sailed to America.

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## Merle Strelcs

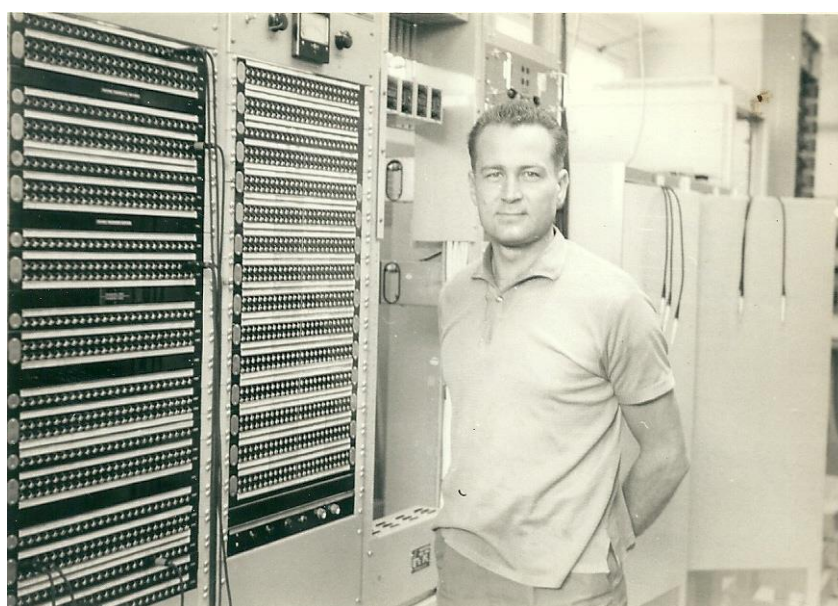
**My recollections are of the Aria Project, which I was a part of in 1966.**

OTC worked with NASA-ARIA projects, USA, to provide high frequency facilities from Gngangara and Bassendean, Western Australia. That involved seven HF 30 kW Transmitters and rhombic antennas for long range communications. These had to provide secure transmissions to achieve that. Electric power supply had to be by diverse routes. All equipment had to be doubled, and tested to have fail-safe systems. The Transmitting Station was established at Gngangara on a 740 hectare site, comprising a large brick building.

The Receiving Station was established at Bassendean, to house high quality, stable, and accurate receivers, (controlled by an atomic clock), and quality receiving antennas. NASA personnel came to test all these to make sure that all were working in preparation for projects to put "Man on the Moon". (They all were).

I was part of Senior Engineer Doug Temperley's team, providing equipment and detailed drawings for the installation and testing of the NASA project. Other names were Phil Humphries, Project Manager; the riggers team headed by George Townsend and the equipment installation team was headed by Bill Darby. Peter Phillips, a Senior Engineer, was sent to the USA to familiarize himself with NASA requirements for this project.

Vic Strelcs at Bassendean Receiving Station showing NASA audio patch field.



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## Guntis (“Gus”) Berzins

### Support to NASA’s Project Apollo

When Neil Armstrong first set foot on the Moon, I did not have a direct involvement in the voice or video transmission which allowed the world to see and hear this historic moment. However, I was involved in establishing one of OTC(A)’s support facilities, the initial earth station at Carnarvon with its distinctive “sugar scoop” dish. As a rather young engineer, I was given the responsibility for testing this earth station, and signing off its acceptance from the manufacturers Northrop Page Communications. When NASA started to organise Project Apollo, it realised that it would need a reliable communications network to connect the tracking and communications stations which it had around the world. As part of the overall network it decided to use satellite communications, a new technology which was just coming into use. So in 1965 NASA contracted for a world-wide satellite communications network to be ready by October 1966, involving lease of capacity on two new Intelsat II satellites – an Atlantic and a Pacific satellite – together with the use of earth stations in the USA (Andover in Maine and Brewster Flat in California), Hawaii, Spain (Robledo near Madrid), Azores, and also Carnarvon in Australia. The purpose of Carnarvon was to provide communications for the NASA Tracking Station, some 6 km away, also on Browns Ridge near Carnarvon. As the timescale for installing the Carnarvon earth station was short – only 12 months – OTC(A) decided to contract with the same company that was supplying stations to Comsat Corporation – Northrop Page Communications. The Carnarvon facilities were essentially identical to the three stations supplied to Comsat.

In order to plan this specialised network, a working group, known as the “Earth Stations Owners Working Group” was established, including participants from Comsat Corporation, Cable and Wireless (responsible for Azores), Spain’s Telefonica (owners of Robledo station) and OTC(A). Together with Ron Knightley, I was one of OTC(A)’s representatives on this group, and although much of our work was done by mail and telex (yes, telex in those days), nevertheless there was also a need for face-to-face meetings. As a result, during 1966, I made three overseas visits - to London, Madrid and Washington - to coordinate details.

One of the important tasks in establishing the Carnarvon earth station was to gather the staff complement for the station. As this was Australia’s first communications earth station, there were few people with the necessary experience in Australia. I believe OTC(A) advertised both in-house, as well as outside and we looked for people from parallel disciplines, who could be cross-trained. In addition, we looked for young and enthusiastic technicians from within OTC(A), who wished to be involved in this new field. Leo Mahoney, an experienced and worldly wise man was selected as station manager, and Jack Gray, also a man of long experience was designated as his deputy.

Together with Leo Mahoney and the station staff, Don Kennedy (the other engineer at Carnarvon) and I spent four months in Carnarvon assisting Page in getting the equipment working and testing it to ensure it met OTC(A) specifications, as well as the requirements agreed by the Owners Working Group. There were many trials and tribulations during this period, including the fact that the apogee motor on the initial Intelsat II satellite misfired, and the satellite went into an elliptical orbit and was unusable for NASA purposes. However, its erratic orbit allowed the first real-time TV transmission from Australia to be made (to the UK), but that’s another story which has been recounted elsewhere.

During the testing of the earth station there was no direct contact with NASA other than with staff on the nearby NASA Tracking Station. The exception was one occasion, when the Carnarvon station was visited by a high ranking NASA official, a Mr. Mueller as I recall, whose job was to satisfy himself that

the facilities being established would indeed meet NASA's critical requirements for the Apollo programme. As one can imagine, he was particularly interested in various aspects of the earth stations' reliability and security. I recall emphasising to him the various duplicated equipment in the station, including the diesel back-up to the often unreliable Carnarvon town power supply, the duplicate cables to the NASA tracking station, laid on each side of the main road for security, as well as the three possible modes of antenna tracking – autotrack, whereby the antenna followed a special satellite beacon, programme track from coordinates on a paper tape provided via telex by Comsat from Washington, and, if all else failed, manual track using a joy stick. Mr. Mueller was also aware that the W.A. coast was visited by cyclones in the summer, and I could point out to him the 12 massive concrete blocks with steel hawsers surrounding the antenna and explain the "cyclone procedure" of turning the antenna horizontally, attaching the hawsers, releasing the brakes and allowing the antenna to swing a little in the cyclonic wind. As I recall, after half a day at our station, Mr. Mueller seemed to depart quite satisfied that the preparations OTC(A) was making would indeed meet the critical needs which NASA required to support their "man-on-the-moon" programme.

On the 5th January 1967, I gave Northrop Page Communications a signed document that OTC(A) accepts the Carnarvon Earth Station, and it commenced service. Subsequently I provided engineering maintenance assistance to Carnarvon from Head Office, but later moved to other tasks.

When the actual landing on the Moon occurred, I was involved in planning further submarine cables systems and earth stations, but I can still recall the dramatic excitement of the day. A large group of us were assembled on one of the floors at 32 Martin Place, with television sets showing video from the mission. Presumably there were similar groups on other floors, and I think there was no one in the building who did not "down tools" to watch this "once-in-a-lifetime" event. Fortunately the actual landing on the Moon was scheduled for lunchtime in Australia, and as the lander approached the

Moon the atmosphere was electric. There was a feeling that the whole world was watching and holding its breath. After some time one could see a somewhat blurry picture of the landers' hatch opening, then Neil Armstrong slowly making his way down the narrow stair and finally, at 12:56, stepping onto the surface of the Moon and saying the now historic words "A small step for man, ----". I'm sure everyone who saw that picture realised that they were watching a truly historic event in the long fabric of mankind. We sat at the television screens for some hours, watching transfixed as Armstrong planted the US flag and the programme on the Moon unfolded, until slowly, one by one, we drifted back to our normal responsibilities. We had seen history being made.

Now, sitting at my computer back in my original homeland Latvia, the establishment of Carnarvon in 1966, and that historic day in July 1969, seem a long time ago and far away, but the excitement of that "small step for mankind" is still palpable. The many OTC(A) people involved in supporting Project Apollo can deservedly look back over the years with pride to their role in this programme.

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## Moree

### A Book About Us

A book, by prize-winning children's author Hesba Brinsmead, uses the activities at OTC's Moree earth station as a central strand in its plot.

The book, entitled, "Who Calls from afar?" is now available in most book shops in a hard cover version, published by Oxford University Press. It was serialised in "The Australian" newspaper over the Christmas holiday period. The character of the book's heroine, Lyn Honeyfield seems to be based on our own Julie Best, the secretary-receptionist at Moree. The story has a fast-moving narrative, tailored to the tastes of primary schoolers. It draws a parallel between a journey undertaken by Lyn, with some of her friends from Moree in the earth station, to the journey of the Apollo 11 astronauts to the moon. Looked at from one point of view, the book would partly provide an interesting answer to that difficult but inevitable question "What does OTC do, daddy?"

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## Carnarvon

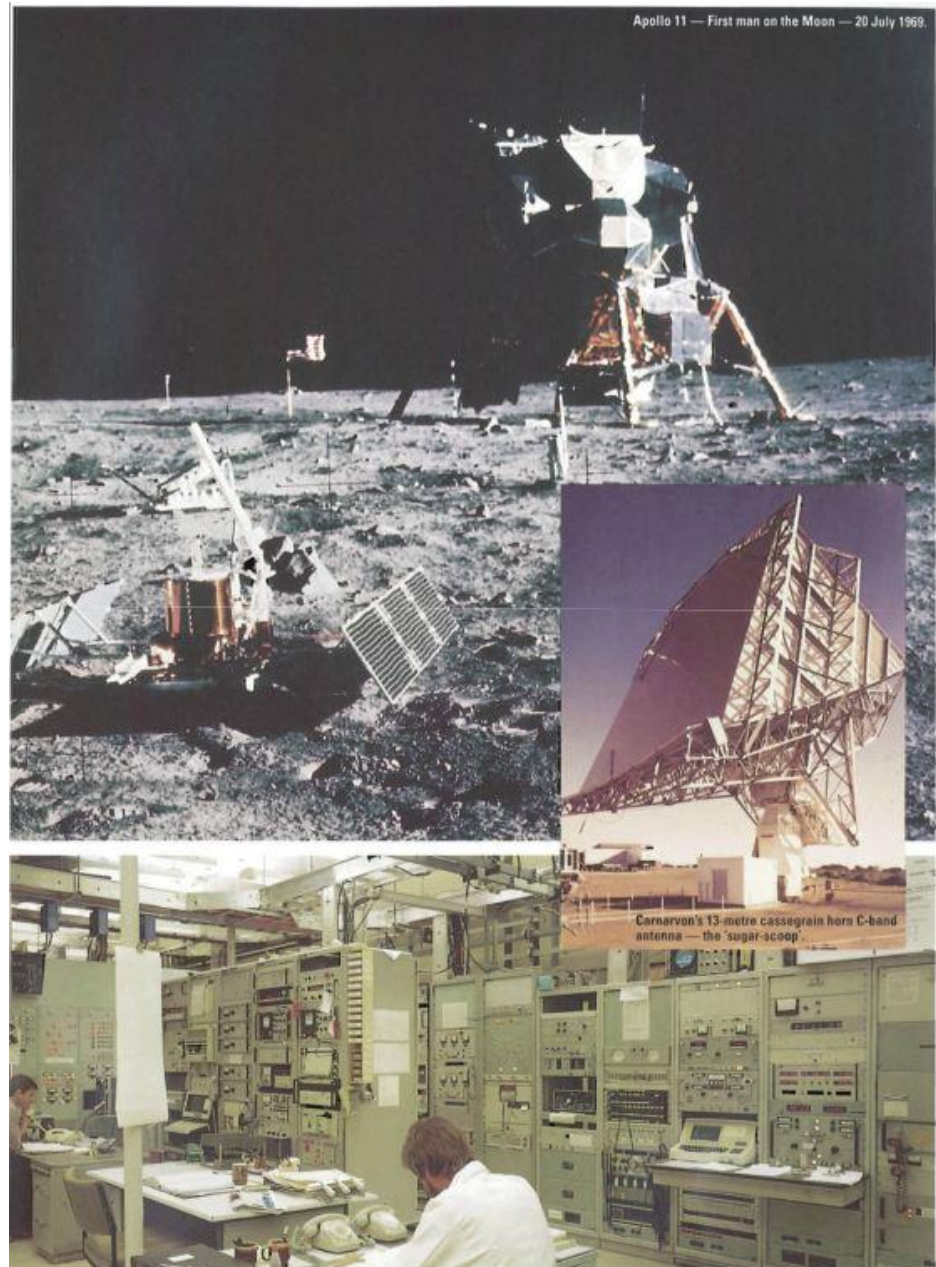
### Transit 1987 May

The station became operational in August 1966, with its first task being to provide tracking, telemetry and command functions for NASA's Apollo missions. Carnarvon earth station's role came to prominence in Australia, and the world, when it transmitted and received the first ever satellite television pictures into and out of Australia, on 24 November 1966. The event was a major milestone in Australia's telecommunications history. 'Down Under Comes Up Live' was an exchange between Carnarvon and London via the Goonhilly Downs earth station in the United Kingdom. The event was made possible by using an Intelsat II satellite which, following a launch mishap, momentarily drifted into a suitable position for the telecast. Over the years, Carnarvon staff have been involved in most of the space programs associated with INTELSAT, and more recently, the European Space Agency. The Mariner series, Surveyor, Apollo, Pioneer, Skylab and Space Shuttle are household words in the field of space technology - and Carnarvon provided support functions for them all. The first major mission in which Carnarvon was involved was Apollo 11 - the first manned lunar landing. Col. Neil Armstrong was the first man to set foot on the moon. His tentative first steps were watched by millions around the world on 20 July 1969.

## Transit 1991 May

This year marks the 25th anniversary of satellite communications from Australia. On 25 November 1966, the inaugural service provided the first live television from overseas when 'Down Under Comes Up Live' was broadcast between OTC's new earth station in Carnarvon, Western Australia, and England via the INTELSAT system.

Carnarvon was built to provide communications circuits to link NASA's spacecraft-tracking station there – supporting the Apollo missions with NASA's control centre in the US. Carnarvon's 13-metre offset Cassegrain horn C-band antenna with a yoke and tower mount became known affectionately as the 'sugar-scoop' because of its unique appearance. It was fitted with cryogenically cooled Low Noise Amplifiers and had a tracking speed of one degree per second. Designed in the US, this station provided OTC with valuable experience for the construction, operation and maintenance of future earth stations.



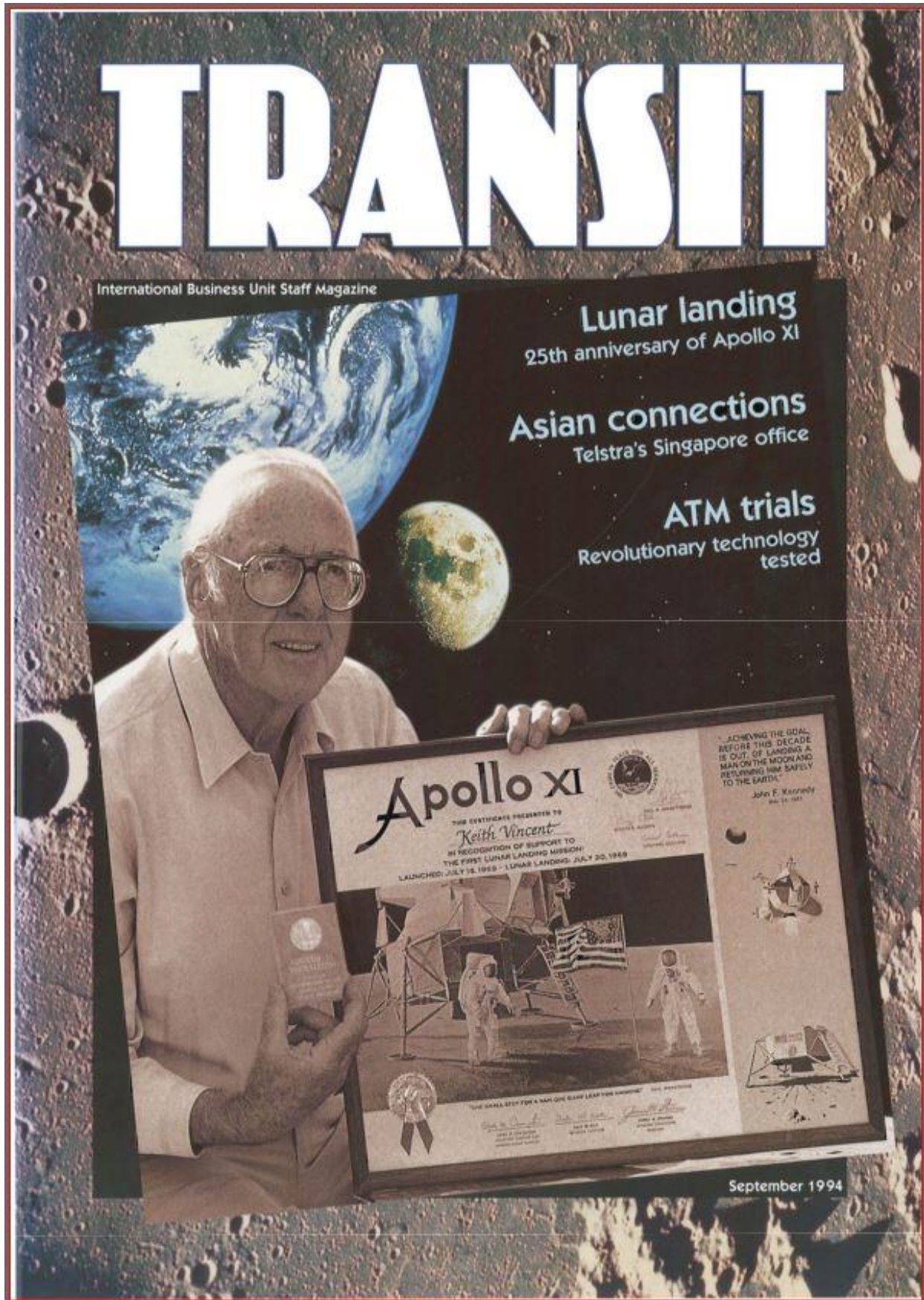
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# Keith Vincent

Transit Sep 1994

Keith Vincent shows some of the memorabilia he received for being part of the Apollo XI mission



# 'One small step for



Astronaut Edwin 'Buzz' Aldrin Jr. walks on the moon's surface.

The specially-designed NASA control room in Paddington exchange, where Keith Vincent played his part in space history.



Official guests and media representatives were able to watch the moon landing from Paddington exchange.

**T**WENTY-FIVE years ago in July, man first set foot on the moon. This momentous event, the culmination of years of planning and preparation by the USA's National Aeronautics and Space Administration (NASA), was witnessed by millions of people around the world. But few watching would have realised that they owed the historic images on their television screens to the facilities of Australia's international telecommunications carrier, OTC.

On Monday 21 July, 1969, when Apollo XI mission commander, Neil Armstrong, emerged from the lunar module to take his first steps on the surface of the moon, the only stations in the world in 'line of sight' with the module were the CSIRO's radio telescope at Parkes (NSW) and the Department of Supply/NASA tracking stations at Honeysuckle Creek and Tidbinbilla.

From these points, the incoming signals

were fed to NASA's switching centre in Canberra, and then to OTC's Paddington international terminal, where they first emerged as a discernable television image.

Keith Vincent (now retired) was the only OTC staff member allowed in the specially-designed NASA control room in Paddington exchange.

'You would have been exhilarated just watching this event, so naturally it was more than breathtaking to really have a role to play and to be a part of history', Keith said.

Two of Keith's colleagues were stationed in a separate video control room which was established to select the best signal for transmission to television audiences in Australia and around the world.

'The signal was split at Paddington and sent simultaneously to the ABC's Gore Hill studios for transmission to Australian audiences and to OTC's Moree satellite earth station for transmission via the

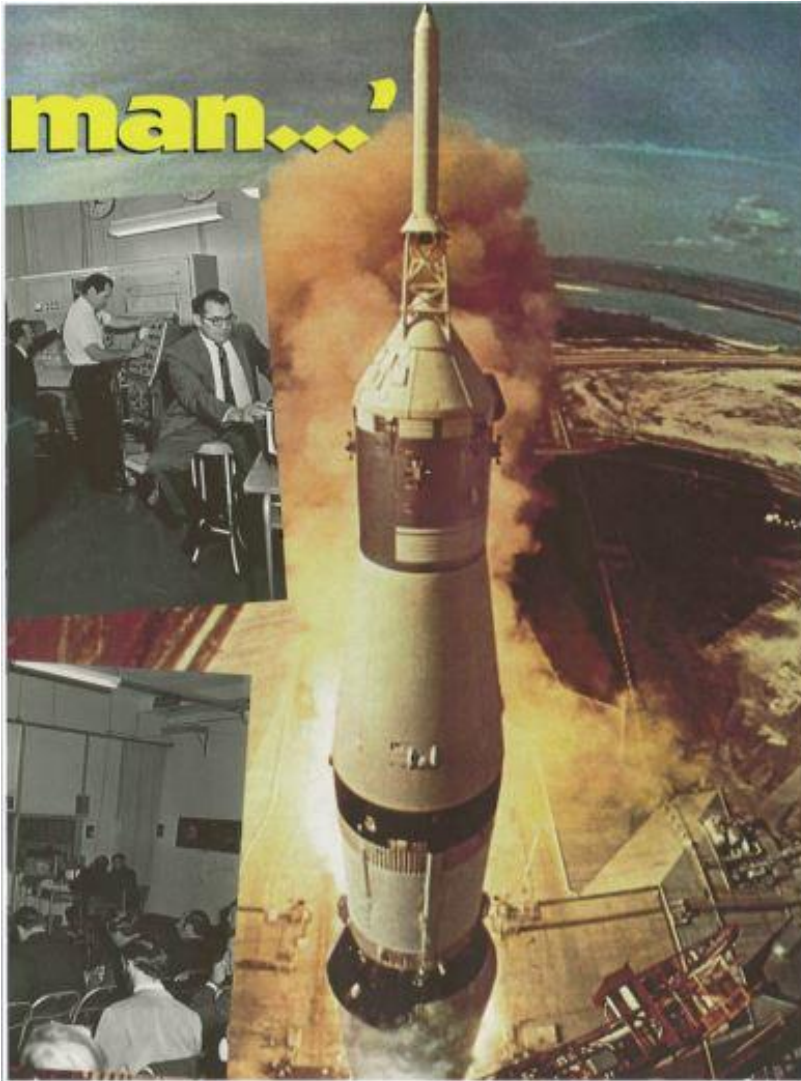
Pacific Intelsat III satellite to mission control in Houston, Texas', Keith explained. 'From there it was redistributed to the US television stations and to other countries around the world.'

'This technique had been trialled during the Apollo X space mission and worked well, so we were confident of its success during the all important moon landing mission.'

Kerry Adams, Manager Doonside/Bringelly, was shift supervisor at Moree when the signal came through.

'We were well aware of the enormity of the event, but because we had rehearsed procedures many times before, there was no sense of urgency or panic', Kerry commented.





OTC's satellite earth stations at Moree (above) and Carnarvon (below) played a major role in the first manned lunar landing.



In the remote north-west of Western Australia, staff at the Carnarvon satellite earth station were also playing a vital role in the lunar mission. Not

only did the earth station transmit the signal to send the astronauts into space, it also monitored the earth orbit of the space vehicle and was the prime station during the critical re-entry operation.

In total, the Carnarvon earth station was involved in 10 hours of tracking activity each day during the lunar mission. Jack

Gray (now retired) was stationed at Carnarvon in 1969 and witnessed the excitement of the lunar landing along with most of the small town's population.

'To celebrate the moon landing, and

Carnarvon's involvement in the event, many of the townspeople attended a special showing of the proceedings at the local picture theatre', Jack said.

'For OTC staff involved in the tracking activities, it was a source of some pride that we saw the moon landing two and a half milliseconds before anyone else — including the President of the United States!'

OTC's network of radio stations were another link in the communications chain for Apollo XI in its orbit around the earth. Voice and data transmissions picked up by NASA's 'flying tracking stations', the Apollo Range Instrumental Aircraft (Aria), were relayed directly to OTC's high frequency radio receiving station at Bringelly.

Transmissions were then relayed via Doonside to the special Aria monitoring console installed at Paddington from where they were sent by COMPAC cable

to Mission Control Centre in Houston. These Aria aircraft were used to keep the Apollo capsule in communication with mission control when it could not be 'seen' by land or sea-based tracking stations.

In total, OTC provided about 90 per cent of the international communications links in the southern hemisphere for the Apollo XI mission, without any disruption to normal international services.

Since the historic Apollo XI flight, OTC continued to provide communications and telemetry support to subsequent missions, culminating in the sixth manned lunar landing, Apollo XVII.

OTC, now Telstra, has also been involved in interplanetary and scientific space missions for NASA and, more recently, for the European Space Agency (ESA) through its earth station in Perth, Western Australia.



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If you can't take a screenshot-please email the treasurer (cc President) anyway to let them know that you have paid your subscription.

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