September 1966

Keeping the Memory Alive

Vol 9 September 2011

THE TRACKERS' CRONICLE

We ran out of CRO supported NASA manned space flight missions of the sixties and seventies a while back, so until we can come up with a new, suitable and lasting, theme (suggestions still welcomed) the newsletter will a) continue to be somewhat patchwork in content, or b) have to be reduced in size. You will also gather that I need suitable material.

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Lunar Escape Systems

From Wikipedia

Propulsion

Typical LESS designs used flexible fuel tanks so that it could fold flat for storage. When the LESS was connected to the LEM ascent stage, the flexible tanks would be filled and expand to their full size ready for flight.

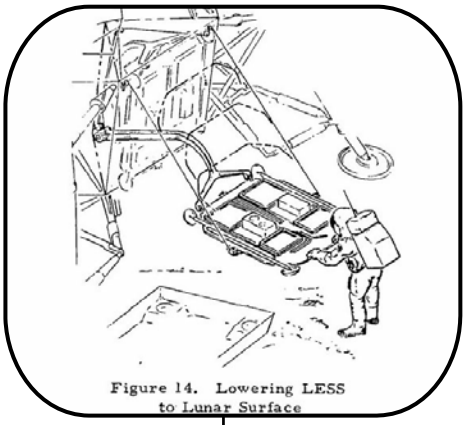


Figure 14. Lowering LESS to Lunar Surface

Some LESS designs used a single engine under the center, but many used multiple engines around the edge, typically based on the Apollo Reaction Control System thrusters used for attitude control on the CSM and LEM. These had a thrust of around a hundred pounds each, so putting eight thrusters in groups of two at the corners of a square gave enough thrust to lift two astronauts to orbit.

Another benefit of the RCS-based designs was that the RCS engines could be fired in bursts as short as ten milliseconds, so instead of complex throttling hardware they could simply be turned on and off to adjust the average thrust over time. They could also be used to provide attitude control by varying the firing rate of different thrusters around the edge of the LESS.

Guidance

Guidance in typical LESS designs was simple: an 'eight-ball' to show spacecraft attitude, a clock to show time since liftoff, and a pre-planned pitch program. The Apollo Guidance Computer used as an autopilot for the CSM and LEM had a mass of around a hundred pounds and consumed a significant amount of power, so computer controlled flight was out of the question. This would be one of the few cases where an astronaut flew a rocket manually all the way to orbit, and with far less instrumentation than normal.

The astronauts would wait until the appropriate liftoff time that would put them into an orbit close to the CSM, then launch. The pilot would attempt to hold a constant heading, and at pre-determined times during the burn he would adjust the pitch to pre-determined angles. This controlled the vertical and horizontal velocity of the LESS and consequently the orbit that it would enter: the engine would be shut down at a pre-determined time when they should have reached the correct orbit.

Fortunately, even if the pilot made a few errors on the way to space, that was not necessarily fatal. The CSM had a fuel reserve, and plans would allow it to change velocity by a maximum of around 250 meters per second in order to rendezvous with the LESS after orbit insertion. While that did not allow much change in orbital inclination, the CSM could significantly change orbital altitude to match the LESS. The biggest threat from piloting errors was that the crew would run out of oxygen before the CSM could reach them.

The LESS would be equipped with a flashing light and VHF radio beacon to simplify tracking from the CSM. On reaching the rendezvous point the CSM pilot would dock with the LESS using the same docking probe that was used to dock with the LEM, and a special attachment on the front of the LESS.

To be continued

Whereabouts

As a result of Paul Dench supplying his "staffing list", augmented courtesy Brian Milne, the "Whereabouts" table of those for whom we have no contact details has expanded to more than one page. Thanks to those who have sent updates.

C Abott
Eric Ainsworth
Gay Albon
Bill Arbery
Allan Barber
John (Allan) Barber
Matt Barber
Keith Barnard
Barrow
Deidre Beaumont
Elizabeth Beckett
Beveridge
Michael Billings
Denis Black
G Bond
S Boyce
Bill Boyle
B Bradley
Phil Brindley
Hans Britz
Dave Brooks
Charlie Brown
T.F.A Brown
W Brown
J Burdett
R Burdett
Martin Burgess
Robert Burns
Joe Cabone
Joy Cameron
Geoff Cardwell
G Carrick
Brian Clarke
Brian Clifford
Keith Clifton-James
Barbara Cobcroft
Bill Comstock
?? Coombs
Ron Cottis

Jim Crossland
Noel Cunningham
F Dawes
Peter Dawson
Peter Del Fante
Andrew Dempster
Jean DeVis
Marilyn Dick
Olive Dick
Phil Dickinson
Neville Dippell
Cheryl? Dixon
L Donkin
John Draper
Mike Dresser
Bruce Duff
I Dunleavy
Bob Dwyer
Dave Elliot
J Erickson
Ross Eyre

Ian Few
Ian Findlay
G Francis
Ben Franklin
David Froom
Don Frost
Jamie Gardiner
L Gardner
S Garner
C George
Joe George
J Gerschwitz
G Goodlace
L Gore
Lyn Grant
Claude Granville
Bob Halse

Geoff Hammond
R Hanes
Bea Hardman
Peter Hardwicke
Ron Harmes
Anne Harvey (Brookes)
D Hatch
Gail Heileman
Stan Hills
Ernie Hindley
Dave Hine

A Holgate
Phyllis Hook (Watson)
J Hopkins
Vivienne Lawer (Hopper)
Ted Hopper
Deidre Howard
B Hughes
B Hunter
D Hutchins
Ian Jones
S ??? Judd
Vera Kastropil
John Keane
Mike Keen
Jim Keenan
John Kelman
Joy King
M King
L King
Roy Kjellgren
Gloria Klarie
Peter Kloppenburg
Henry Larsen
Russ Leighton
G Linney
F Lippett
Alex Liu

The quest continues; the list never seems to get very much shorter.

I have been given information concerning the possible whereabouts of a few of these, but so far have not been successful in obtaining, or confirming, details. The Reunion Dinner brought out some missing persons, but there are also a few who do not wish to be contacted.

Whereabouts ctd.

Gloria Lyon-Roberts
Ross MacDonald
John Mahaffey
Peter Maine
Roy Mallinson
Bob Marr
Keith Mathieson
Alec Matthews
K McCarson
Ian McDonald
S McDonald
Frank McGregor
Eileen McLaughlan
Don McLellan
Nola Meiklejohn (O'Byrne)
R Miller
Bill Mills
Ray Mills
Marilyn Milner (Gobby)
John Mogg
Sharon Morgan (Todd)
J Murray
Dennis Naylor
Gloria Neal
Ellie Nichols
K Elton Nickerson
Graham Nielsen
John Noble
? O'Brien
Joan Oats
W Oliver
Denis Owens
John Paddon
??? Mrs Parkinson
John Parkinson
Alan Paterson
? Paull
Mike Pender
Wendy Petersen

Don Pettitt
T Phillips
Diane Pitman (Housley)
John Platten
Gerry Plummer
D Powell
M.J.K Power
Wendy Puccinelli
Lorna Quinn
Roger Ramsden
A Rees
Dave Rendell
Frank Rice
Doug Richards
D Richardson
Harry Richmond
Ralp Richmond
Dave Rickards
G Riley
Brian Robinson
Lynne Rosser
Ted Rosser
Lindsay Sage
Stewart Sands
Ron Sargeant
Russell Schwarzer
Bob Scott
Michael Scott-Malcolm
Lorraine Scott-Malcolm (Erlandsen)
Dorcas Sefton-Bellion
George Sefton-Bellion
D Selby
Ron Shand
Fred Sharland
E Sharples
? Sheehan
Jeff Shuttleworth
P Sims

Ray Skender
George Small
Lyn Smart (Willis)
J Smith
Mary Smith
P Smith
Roger Smith
Bill Smythe
Hazel Snook (Howse)
Dave Standbury
John Stanton
Alex Stevenson
Barbara Stephenson (Vernon)
Barbara Teahan
Barbara Teasdale
Des Terrill
Alan Thomas
Christine Thomas
Howard Thomas
Don Thompson
Jack Thompson
Patsy Thompson (Nolan)
Larry Tomkins
Frank Toomey
Mike Travell
Norma Turner
Ernst Uhl
TonyVingerhoets
Dave Walker
Mrs B Ward
Tom Ward
N Wardle
A Watermeyer
Irene West
Bernie Wilbourne
Garnet Wilmott
Brian Wilson
Ray Zatorski

Media Statement

2011 Margaret Medcalf Award

Paul Dench and Alison Gregg were commended for their book Carnarvon and Apollo: one giant leap for a small Australian town, a lively exploration of Carnarvon's critical role in support of NASA space missions, published by Rosenberg Publishing. Mr Dench was the first engineer recruited to work at the station, eventually becoming station manager and Ms Gregg was a newspaper reporter and wife of one of the station's technicians.

This year's award judges were The University of Western Australia Associate Professor Andrea Gaynor, State Records Commissioner Justine McDermott, and State Archivist and Executive Director of the State Records Office Cathrin Cassarchis.

The Saga Continues - Part 1

From Phil Youd
Director Hits Radio Pty Ltd
29 June 2011 10:40 AM

I attended the Carnarvon Shire meeting yesterday to hear about the OTC site audit. The outcome was at best 1 step forward (for the dish), but no joy as yet to our museum. The Shire had split the audit into two main parts. 1: The dish, 2: Support Buildings. There are structural and electrical reports/quotes for both.

The outcome that was adopted was to: 1)"proceed to undertake remedial works for the OTC Parabolic Dish, based on the assessment in the report. Using unspent funding of $100,000 in the 2010/11 budget to be reallocated by the Gascoyne Development Commission.

Allocating in the 2011/12 budget an amount of $133,000 (which includes the GDC $100,000)"

2) "Inform the OTC Museum Working Group (that would be us - *Carnarvon Space and Technology Museum Inc*) it is prepared to entertain discussions on the future establishment of a Museum/Interpretive Centre in the main operations building."

Councillor Eddy Smith threw a bit of a spanner in the works, saying "this should go back to his OTC site committee and that the OTC site Master Plan should be adopted before any repairs are made". It was however agreed by the Shire Councillors that the money needed to be allocated in the next Shire budget for fear of losing the current GDC funding. He agreed to this, but the whole thing has been put back to his committee to be discussed further.

I tend to agree with Eddy that a plan should be adopted, however the estimated cost of the current 'Master Plan" is somewhat excessive and scary to the other councillors, which is the main stumbling block. I have just spoken with Eddy on the phone, reiterating our position. He is going to try to get a meeting up next week with his committee.

I have a meeting scheduled this afternoon with Ian D'Arcy who is the *Shire of Carnarvon - Development Services Manager* and author of the recommendations of the OTC site audit. I met with Ian on site a few months ago so I think he understands our position and wishes. Hopefully he may be able to guide me further. The estimated costs of bringing the main operations building up to spec for public use in the audit is $187,000. I believe a bit excessive as well. One item is "Exit signs that are clearly visible and illuminated are to be placed on each and every compliant Exit door" = $10,064.00. I think a bit over the top. Don't you?

What I have been trying to do is get the Shire to give our group - *Carnarvon Space and Technology Museum Inc*, permission to use the main admin building at the OTC site for a museum & interpretive centre. Once this has happened, we can then apply for funding in our own right and start moving forward, working closely with the Shire and GDC.

I'll keep you posted.

Abort Request Command

From Wayne Hale's Blog
http://waynehale.wordpress.com/

The hardware Abort Switch had a nasty habit of sticking on and flooding the command buffer with "Abort A" or "Abort B" commands unless the switch was allowed to pop freely back to the neutral position. If the Abort Switch got stuck in this continuous command mode, no other commands could be sent to the shuttle and the Ground Control officer's back room had to do computer terminal magic work to make it go away – remember, those were the days of main frame computers and ordinary mortals – or even the Flight Director – were not allowed to touch a computer terminal.

Funny thing, all this effort was merely to illuminate a light on the Shuttle Commander's dashboard. The entire sequence sent a series of "Abort Request Commands" which really did very little. But we paid a lot of attention to the sequence. When properly initiated the Abort Switch first sent three times the single stage "Abort Request A Command" which, once received onboard, was routed from the radio equipment to the General Purpose Computers to a Multiplexer/Demultiplexer to one of the Annunciator Control Assembly electronics to light one bulb of the Commander's abort light. The second actuation sent the "B" command out three times through the same radio equipment to the GPCs then to a redundant MDM and ACA to light the redundant bulb in the Commander's abort light. The Shuttle Commander, after having the confirming cue as described in the flight rule above, then moves the rotary abort switch from its "off" position to the desired abort mode (RTLS, TAL, ATO, or AOA) and punches the Abort push button indicator (which the abort commands have illuminated), and then the computer software modes to the desired abort mode and away you go. Whew. Go back and read that slowly. All of that, just to avoid making a mistake. Does it sound overly complex to you?

When we moved to the "new" control center in the mid 90's, the builders wanted to eliminate the abort switch and just have the Flight Director send the abort commands by mouse click on the computer screen in front of him. The Flight Director office rebelled against this affront to tradition and demanded a dedicated PBI on the console to send the abort command. Probably the only PBI in the "new" control center is the Flight Director's Abort button. Which doesn't do anything but light a light in front of the spacecraft commander. But don't worry; it has complex and convoluted software to control it!

During multitudinous simulations in both the old and new control centers, I have had the opportunity to send the abort command to the crew in the shuttle mission simulator probably a thousand times. The only Flight Director to have a reason to send the abort request command in real flight was Orion Flight, Flight Director #21, Cleon Lacefield, on STS-51-F in 1985. The Center SSME was erroneously shut down early by bad instrumentation resulting in an Abort To Orbit (which is principally a dump of fuel from the Orbital Maneuvering System). STS-51-F made it to orbit, and the mission was accomplished completely successfully albeit at a lower than planned orbital altitude. There is an apocryphal story that Cleon was so busy with the ascent that he neglected to send the Abort Request Command. I don't know if that is true, I need to ask Cleon. In any event, Orion Flight is the only American Flight Director to declare an ascent abort in history of American manned spaceflight.

All of that is background to my real story for the day.

To be continued

The Saga Continues - Part 2

From Phil Youd
Director Hits Radio Pty Ltd
29 June 2011 4:29 PM

I've just finished my meeting with Ian D'Arcy from the Shire of Carnarvon. The meeting went quite well. I queried the building audit costs and suggested that our group could achieve the same results for a much cheaper price.

I had spoken with the local Mitre 10 store owner this afternoon regarding constructing a "firewall" as per the audit, and the costs that he's talking don't add up to anywhere (near) the $34,985 in the audit. I also spoke with a local air conditioning mechanic regarding removal of an air conditioner and again he said it wouldn't cost anywhere near the $21,390 as per the audit.

He has informed me that a meeting is going to be called for later next week of the Shire's OTC committee. I will be receiving an invitation. So I may come back up here for that.

Yet another $1,000 for an air fare!! This committee consists of 2 councillors, a member of the GDC & 3 Shire staff. My intention is to either go to the meeting next week in person, or be on the phone. They will be discussing the *OTC Master Plan*, which the museum is part of.

Depending on the outcome of next week's meeting, I would like to write to the Shire and officially apply for a peppercorn lease of the building and assistance in kind for funding applications etc. Does anyone have any thoughts or concerns?

I imagine I would then need to be available for the Shire meeting on July 26. If this is the case, who would like to attend as well to provide support?

Once we get the OK from Shire we can then apply for funding ourselves and finally get under way.

As always, your questions or comments are welcomed.

The Saga Continues - Part 3

From Phil Youd
Director Hits Radio Pty Ltd
14 July 2011 4:34 PM

I've just come out of the "OTC Working Group" meeting which I must say went quite well. Far better than I expected.

The Shires current "Master Plan" is to be cut back to become a workable plan that should then be adopted by the Shire. All the acquiring of land and all the fluff will be amended/deleted. It is to be re-written by Ian D'Arcy from the Shire with instructions from Maurice Battilana the CEO. It is important to get a plan approved by the Shire as it allows an avenue for funding. The revised plan will also encourage our group to start and operate a museum and interpretive centre possibly on a peppercorn lease.

I advised the members of this group that our organisation will be using the Master Plan as a guide as there are many good points within it, but not all are feasible. The two Shire councillors and CEO said to me, "keep working on what we're doing". How long will this take? Won't be years, but more likely a few months or so.

So I think we're actually moving forward.

The Fisherman Who Rode a Horse

Continuation of an extract from the autobiography of Ken Watters.

His point was really bought home two days later when the river dropped. The racing water had scoured a hole twenty feet deep on the downstream side of the causeway, if the railing had let go I would have been very lucky to survive.

In March a new girl started as an equipment operator on Viv Batty's shift, it was Judy Piper my future wife. I lost all confidence in myself whenever she was around and wished that I had more experience asking girls out in Perth. I was sure my Shark Bay approach would be far too unsophisticated and it took me ages to work up the courage to ask her out. We met nearly every day on changes of shift. She would drive into Carnarvon to pick me and the rest of my shift up for work and I would drive her and her shift home. I would make a point of picking Judy up first so she would sit next to me on the front bench seat of the Falcon. Judy was going steady with another guy in town so I just had to bide my time.

Mum and Dad moved to Carnarvon with my three brothers and bought Dad's 28 foot caravan up to live in. They settled out at Nor West Whaling where Dad had a job as jetty master and Bub got a job as trainee factory hand in the prawn processing room. John got a job as postal clerk at the Carnarvon Post Office. I was so intrigued with my job at the Tracking Station that I decided to postpone my return to the boats. I continued to try to understand what all the equipment at the Tracking Station was doing and one night I was on the early morning shift when things were pretty quiet and I was by myself in the Transmitter Van. I was playing with a slotted wave guide trying to measure the wave length of the s-band signal that we sent to the satellites when the Station Director, Mr. Louis Wainwright, climbed up the steps into the Van.

"Good morning, and what are you up to there?" he asked.

"Good morning Mr Wainwright, I'm measuring the wave length of our transmitter signal."

"You're Ken Watters aren't you?" he asked.

"Yes Mr Wainwright, I'm the technical assistant on Max's shift."

"And what results do you have from your measurements?"

"Well to be honest they are not what they should be, I keep getting a measurement longer than what it should be."

"What makes you think it is wrong?"

"Well I know the frequency of the signal and I know the speed of light so I can work out what it should be in theory but I keep getting the same reading that tells me the signal is either travelling down the wave guide faster than the speed of light which I know cannot be the case or the frequency of our signal is not what it should be."

"Let me help you", Mr Wainwright said as he stepped in alongside me.

We worked together for half an hour and confirmed the readings that I had been getting.

"This is strange, Ken, you will have to leave it with me and I will try to find out what is happening."

To be continued

Letters to the Editor

Hi Terry,

I enjoyed the story of the Landie being caught in the surprising rise of the river. It brought back memories of two of us taking a swim in the early days after the river came down. Initially, wary of getting swept by the current, we could only stand knee deep in the silty fast-flowing river. After getting out of the water one was quickly dried by the sun, and covered by a very fine dust that felt like talcum powder. It was a contrast to picnicking on the dry river bed a few weeks earlier, but that was another story.
KB

_____

Thanks for that info TK.

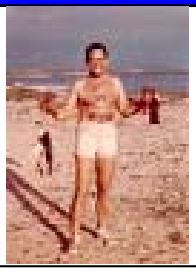
21 July 1969, Apollo 11 lunar landing.

Working at STADAN and took a tape up to T&C when the “lights and alarm” went off. OMG – I was stuck there. How privileged was I?????

Ended up in the control room – watching the landing on the moon on the monitors with Colin Foster and crew.

LG aka TB

Who Is The CAPCOM At CRO?



Dan Hunter
Photo Dutch von Ehrenfried

”I have been informed by an old ex GSFC friend Bill Pheiffer, that Dan Hunter ex FOD passed away in Boston July 22. Dan was my first boss at JSC and he was responsible for building the Remote Site CAPCOM group and the building of the remote sites to support Gemini. Dan is also famous? for being the other CAPCOM in the Gemini 3 incident, Who is the CAPCOM at CRO, with Pete Conrad? He later transferred to GSFC, and was the Station Manager at Madrid and worked in the TDRSS program office.”
— Ed Fendell

Pete Conrad
Photo www.spacefacts.de

“My memory remembers in GTIII Pete Conrad was the Capcom, but there was a ding dong battle between Pete and the Flight Team Leader Danny Hunter who was in charge and who was going to sit on the console and speak to the spacecraft, and Pete won.

I remember the battle at our end with Hunter and Conrad requesting private lines back to the States. We didn't know which one was the boss, as they both tried to run the mission at the beginning. To my surprise Gene Kranz used four pages in his book ‘Failure is not an Option’ pages 127-130) to graphically describe the incident from Houston's side.

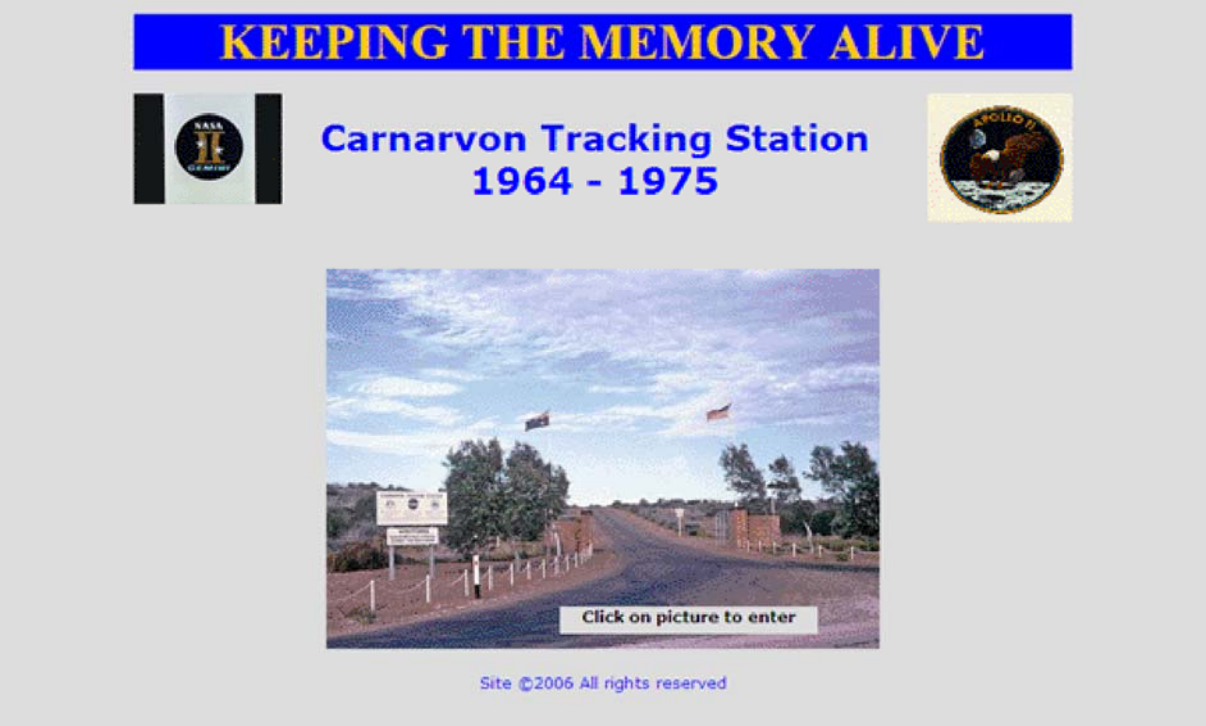
It began with Chris Kraft and Deke Slayton having an argument - Kranz had put Hunter in charge, and Slayton had put Conrad in charge. Hunter told Kranz that Conrad wouldn't know an Acquisition Aid if it fell on him. It ended with the astronauts and controllers divided into separate angry groups.” — Hamish Lindsay

“I remember it all very well as I was the person probably most affected by the conflict. I was constantly having to change the configuration of the CapCom console from the common network configuration as required by Danny Hunter to a very different configuration required by Pete Conrad. I was a nervous wreck until Lew Wainright promised he was sorting it out with Mission Control. The story covers about 2 pages in our book.” — Paul Dench

Social Club News
September — Early Seventies

Meanwhile, back behind the bar(s), what have we in this mini edition? More scintillating SF from the great Harold Smith, a traveller's tale from Roger Williams (late of USB, recipes from the house of Bev, sundry odes and oddities and a new $4,000 crossword competition –well we've got to do something with the money before the shop shuts. Not so mini perhaps, but the New Year edition will be if you don't respond to the challenge. In case you need more encouragement, here are a few ideas, loosely- and quite unconsciously –linked with a few names.

Snap Happy .....G. Allan
Talking about Vampires.....W. Arbery
How to Get Out of a Port Unit.....G. Armstrong
How to Label Your Suitcase.....R. Ashford
There Was a Young Man of Carnarvon.....V. Batty
The Secret Lives of Wilson Tuckey.....C. Bennett
A Perfect Bidding System.....D. Black
Breeding Crocodiles in a Small Garden.....W. Brennan
Talking About .....D.Brindal
My Intentions are Honourable.....A. Brooke
Ignorance is Not Bliss.....B. Byrne
House Maintenance and Repair.....T. Cates
The Population Explosion.....W. (J?)Chandler
Minding Ones Own 'Business.....J. Cleary
Aquariums are Fun.....V. Constable
Tapestry for Beginners.....E.Crimmins
The Numbers Racket.....C. Davies
Teach Yourself Music.....R. Davies
How Power Corrupts.....P. Dench
Why I Stopped Voting for Wallace.....A. DeRamus
How to Catch Fish Without Max.....J. Findlay
Tying Your Flies.....M. Garth
The World Problem Solved.....E. Cook
Hell's Angels.....K. Gates
American Women.....R. Gilbert
Balloons.....R. Glass
The Language of Diplomacy.....G. Glover
How to Keep Off Committees.....W. Graham
Maintenance of the Bicycle.....B. Gray
Does God Exist?.....A. Green
Does Tony Green Exist?.....R. Halse
Best Excuses.....B. Heald
No Excuses.....J. Harmsen
Cohabitation in Caravans.....M. Henderson
Jesus Wants Me for a Sunbeam.....D. Hine
Skin Tracking at Lunar Range.....R. Hocking
Dialectics After Kant.....P. Hook
Choosing a Car.....R. Houghton
Apple Pie .....B. Hunter
Breakfast in a Volkswagen.....A. Irvine
Why the Headingley Test was Fair.....D. Judd
Tales for Tiny Tots.....J. Kelman



My sincere thanks to all of those who have contributed to the website so far; listed at: http://crotrak.com/thank_you.htm .

There is a lot to come including more photographs from the 40th Anniversary Reunion Dinner, courtesy Trevor Housley, Tito & Joan Teraci, Margaret Hall and Max Garth. Just wish I had more than two hands - need to get them done before the next dinner

I can arrange copying, scanning, whatever, so as to get them uploaded to our website; you need have no fears regarding their safety.

NASA Sues Astronaut Over Apollo 14 Camera

If you were the sixth man on the moon, you might think that, like Hollywood actors on a set, you deserved a souvenir or two.

It seems that, 40 years ago, after Edgar Mitchell performed his moonwalking duties, he took a lunar movie camera home with him, one that he tried to auction in May.

In Reuters' description, Mitchell's lawyer says that he received permission from NASA to take the camera.

The mention of the word "lawyer" might lead you to conclude that there might be a dispute. Indeed, the U.S. government, on behalf of NASA, has reportedly filed papers in court to prevent the auction from happening and to have the camera returned to NASA.

Read more:

http://news.cnet.com/8301-17852_3-20075963-71/nasa-sues-astronaut-over-apollo-14-camera/#ixzz1QpC1Oago.

Keeping the Memory Alive

Minus Ten and Counting

A poem by Al Worden

Say to me, 'No more Apollo'.
Say to me, 'The job is done'.
And I say, 'Your words are hollow,
And our work has just begun'.

Say to me 'We need the money,
Just to feed the poor'.
And I say, 'Gee, that's funny,
It's for them that we explore'.

Say to me, 'We should be fighting'.
Say to me, 'The world's at war'.
And I say, 'We are uniting,
People tire of war and more'.

Say to me, 'There's too much danger'.
Say, 'We could be lost'.
And I say, 'I am no stranger
To danger. That's the cost'.

Say to me. 'Our world is dying,
Ready for it's last hurrah'.
And I cry, 'Keep on trying,
We must find our Shangri-La'.

Say to me. 'No more Apollo'.
Say to me. 'The job is done'.
And I say. 'Your words are hollow,
and our work has just begun'.

And our work has just begun.

Photographs courtesy NASA

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