

MESSAGE FROM DEPUTY CHIEF OF AIR FORCE

"I am writing to inform members of the aviation community interested in the future of RAAF Point Cook of new arrangements to assure the preservation and further development of this important RAAF and national aviation heritage site.

You are now aware that the Parliamentary Secretary to the Minister for Defence, the Hon, Teresa Gambaro MP has determined that the formation of an Aviation Heritage Trust is no longer appropriate in light of significant changes in the situation at RAAF Point Cook and new arrangements that have been put in place by the Chief of Air Force.

To address the RAAF's enduring requirement for the preservation of the RAAF Museum and the important heritage buildings and other structures at Point Cook, the Chief of Air Force has formed a RAAF Heritage Advisory Council. This Council will be responsible for providing the Chief with strategy and policy advice to engage the ongoing community interest in preserving the RAAF heritage values of Point Cook. I have the honour to be the first Chairman of the Council.

To ensure the widest possible consideration of ideas for the preservation and future development of RAAF Point Cook, the Council will be seeking proposals from individuals and organisations with an interest in the site. Once the new administrative arrangements are in place I will be contacting you again to seek your advice and proposals.

Please be assured that the RAAF is committed to preserving Point Cook and working with the aviation community to achieve the best possible outcome for this heritage site of world importance."

(Roxley McLennan, AM)
Air Vice-Marshal
Deputy Chief of Air Force



The President's Log—by Alan Middleton



The future of the RAAF Base at Point Cook has been the subject of great concern to all who have an interest in the preservation of the Birthplace of the RAAF, which is also the site from which pioneer Civil Aviation flights were made.

I think everybody knew of the decision in February 2004 to form a Trust to undertake the development of the area, including the RAAF Museum, however, we have now received a message from the Deputy Chief of Airforce, Air Vice Marshal Roxley McLennan AM, that new arrangements have been put in place by the Chief of Air Force. A copy of this message is included on the front of this Bulletin for your information and, I am sure, we are all delighted at this positive approach.

Graeme Coates was interested to establish the meaning of the motto of 87 Sqdn, "Videmus Militamus", with the squadron badge showing a crossed sword and feather superimposed over a radiant sun. Graeme considered if this implies "the pen is mightier than the sword", then the feather/pen/quill should be on top, so he directed a query to the Australian War Memorial Research Centre.

The reply he received was that the motto means "We see and we fight", a most applicable motto for a gallant photo recce squadron. Our thanks to Graeme for this research.

One of our Members, Lindsay Collins, had a birthday in November, - his 90th! Lindsay spent a

large part of his RAAF service as a Flying Instructor on Tiger Moths at Benalla and in 1945 completed conversion training and finished his war as a Pilot with 94 Sqdn flying Mosquitoes. His hobbies in which he still is active include skiing and bush walking, and we congratulate Lindsay on his remarkable fortitude.

In a previous issue of our Bulletin we briefly mentioned that Beaufighters were based at Coomalie Creek prior to 87 Sqdn moving in. The Whisperer is the newsletter of the Beaufighter and Boston Association of Queensland and I have been fortunate recently to have copies of these passed to me by my ex RAAF Nav/W friend, Austin (Shot) Doneley, formerly of Brisbane and now living in Melbourne.

The September issue of The Whisperer contains an article on Coomalie Creek, which became the base of 31 Sqdn Beaufighters in November 1942, at which time the airfield was very new and was only available for limited use. Aircraft had to take care not to collide with machinery or workmen. The article also lists crashes at Coomalie of 16 Beaus and 3 Mossies between November 42 and August 45. In November 44, 3 C-47's from 34 Sqdn were detached to Coomalie and moved from there to Morotai in February 45.

Our team of Volunteers continues to attend at RAAF Museum on a regular basis, computerising data, producing plan and other technical drawings, fabricating work stands, sorting and collating parts, classifying photos and carrying out sundry other jobs which we hope are helpful to Brett, Ron and Geoff in the ongoing restoration of A52-600. The efforts of everyone associated with the restoration are outstanding as the overall progress appears to be slow, but the precision required is infinite and cannot be rushed. On your behalf, I thank the team for their ongoing interest and contribution.

As the festive season is here, I send to all our Members greetings and best wishes for the coming years and thank you for your continuing support.

The driver is safer when the road is dry. The road is safer when the driver is dry - W.G.P.

A52-600 Restoration Update—by TRB

On the floor of the Restoration Hangar, the fuselage of A52-600 now looks a little more like the real thing. Side panels (restored earlier by the team at RAAF Richmond) have been temporarily installed below the wing cutouts to stabilise the fuselage structure. Next step will be another temporary installation when the ventral (bomb bay to you and me) doors are connected to the structure. With these panels fitted, the fuselage will be far more resistant to torsional displacement and be a stiffer structure. It won't reach full torsional rigidity until the wings are fitted, as they are an integral part of the monocoque structure of the entire airframe; and that won't be for some time yet.



The object of this exercise is to give as stable a base structure as is possible before stripping more of the crumbling fuselage away. These are the bits where the rot has well and truly set in. In parallel with this temporary re-assembly, work has begun to form whatever replacement sections of fuselage are required over partial moulds; just like the male moulds that were constructed to replace the missing section of rear

fuselage. We're looking particularly at the fuselage just aft of Bulkhead 4, which forms the rear bulkhead of the bomb bay. So there's still plenty of work to come in this area.

As an aside, the bomb bay (sorry, ventral) doors on the PR Mk XVI are not operable in flight, as someone must have figured that dropping the cameras defeated the purpose of the exercise! Might have given someone a headache, though.



Mock-up perspex panels have been fitted in the V-section of the windscreen in the cockpit canopy frame to check how accurate the frame itself is. These will eventually be replaced by the original triplex-laminated glass panels; other glass panels included the optically flat panel in the nose, and curved panels on each side of the nose forward of the windscreen. Don't quote me on those last two panels, they may have been perspex.

The two spinners have been restored, primed, filled where required and undercoated ready for final painting. Backplates for the spinners are currently receiving some TLC to make sure all the

Children have never been very good listening to their elders,
but they have never failed to imitate them - James Baldwin

A52-600 Restoration Update—by TRB



latches and catches (which attach to the spinners) are fully operable and ready for final assembly. Noel Penny is the man in the photo, and he's been kept busy by several other MAAA volunteers including Arthur Winton (team leader on this exercise), Don Taylor and Bob Stevens. Together with the boss (president of the MAAA Alan Middleton), this crew have also been literally getting down to the nuts'n'bolts of the project, sorting out the numbers, sizes and configuration of the mounds of aircraft grade hardware that's still to find a home on A52-600. Many of them

were also involved with Ron Gretton in restoring main undercarriage components; we're almost half way through bringing them all up to airworthy condition. Meanwhile, Pat Dulhunty and his "apprentice" Don Taylor have been fabricating a stand for the main undercarriage assemblies. This will eventually include mock-ups of the front and rear wing spars, ribs 3 and 4 in that locality, and the entire undercarriage assemblies will be hung from them as in the aircraft itself. The idea is that retraction trials will be possible in the



stand; and that ain't as easy as it sounds.

When these aircraft were originally built, the wing spars were made as separate components. They were then installed in the wing assembly jigs, and each rib fitted into its allocated slot in the jigs. Without the jigs, it's a whole new ball game; it's also complicated by the wings being in no fit condition to use as templates. So Graeme Coates, taking time off from establishing a computerised database of Mosquito drawings, parts lists, links etc, has been finding and plotting various original De Havilland drawings which show relationships between front and rear spars, dihedral angles, taper ratios, forward sweep (of the rear spar), and relative offsets and positions of wing ribs in that area. Your scribe has then been trying to make sense of this mountain of information to fit it all together on various computerised drawings so we can make the mock-up spars. It's intri-



The reward of a thing well done is to have done it - Ralph Waldo Emerson

A52-600 Restoration Update—by TRB



unteers spend two Sundays a month at the RAAF Museum. Most notable of other activities is perhaps the establishment of our MAAA archives. David Devenish is hip deep in finding just what we have to catalogue, categorise and generally put in some sort of order. More about Dave and other odds and ends next time.

Best wishes to all for a safe, healthy and satisfying festive season. I look forward to our next contact in 2006.

TRB

cate, painstaking and time consuming and without the two of us working together we'd be getting nowhere. We'd also be lost without the patient direction of the full time staff, none more so than Restorations manager Brett Clowes.

That's a quick look at where we are at the moment, and how some of the Aussie Mossie vol-



The confirmed gambler said he only kept on gambling because he was too old to gambol - W.G.P.

A52-600 Restoration Update—by TRB



A couple of comments that may or may not be related to the restoration of A52-600... but



Volunteers at the RAAF Museum who happened to be a bit late in leaving on Sunday 20 November 2005 were treated to an unexpected bonus. After an annual overhaul, the Museum's Mustang (painted to represent A68-750) was towed out for an initial engine run. After a belched cloud of lubricant and a minute or so of slightly rough running at low revs, the Packard Merlin settled in to its typical 12 cylinder supercharged growl. Here's MAAA member Don Taylor's magnificent cowls-off shot of the beast with Technical Curator David Jones conducting the symphony.



Some people must make a full time career of clumsiness.
They couldn't be so good at it by accident - W.G.P.

A52-600 Restoration



Advice given to RAF pilots during WW II. When a prang seems inevitable, endeavour to strike the softest, cheapest object in the vicinity as slowly and gently as possible.

People's minds are like parachutes. To function properly they must first be open - W.G.P.

Mossie Data by Brian Fillery

Mosquito B Mk XVI.

Description: Bomber
Engines: Merlin 72/73, or 76/77
First flight: 1 January 1944

Wing Span: 54ft 2ins (16.45m)
Wing Area: 454sq ft (42.2sq m)

Length: 41ft 6ins (12.64m)
Height: 15ft 3ins (4.65m)

Weight: 25,412lbs (9,734kg) All up weight
 25,200lbs (11,430kg) with 4,000lb (1,861kg) bomb - Max take off weight.
 20,500lbs (9,298kg) with 4,000lb (1,861kg) bomb - Max Landing weight.

Fuel: 860 gallons (3,136 litres) max, 539 gallons (2,450 litres) with useful load
 497 gallons (2,259 litres) with 4,000lb (1,861kg) bomb and 2 x 100 gallon (454 litre) tanks

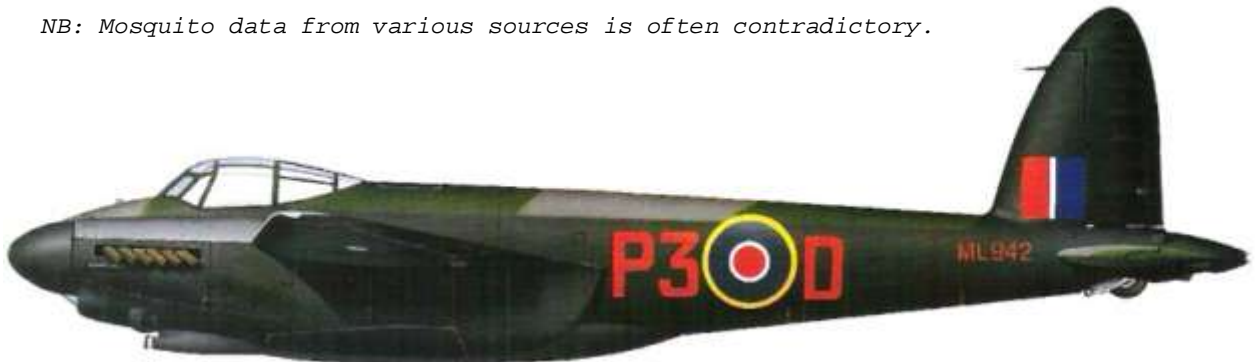
Speed: 415mph (667kph) max
 408mph (656kph) in FS gear at 28,500ft (8686m) before target
 329mph (529kph) at sea level
 333mph (535kph) at sea level after leaving target

Ceiling: 37,000ft (11,273m)
Max Range: 1,485 miles (2,395km) with 4,000lb (1,816kg) bomb load

Weapons: Unarmed.
Bomb Load: 4,000lb (1,816kg)

Notes: Pressure cabin. Bulging bomb doors. Unshrouded exhausts.

NB: Mosquito data from various sources is often contradictory.



Do not choose to be wrong for the sake of being different - Lord Samuel

Dambusters - Part 1

This is Part one of a two part story about the Dambusters reproduced from the June 1993 Supplement in the FlyPast Magazine published by Key Publishing Ltd, Stamford, England on the 50th anniversary of the Dams raid, May 16/17 1943.

Part one covers the politics, building and testing of the 'bouncing' bomb and part two will be included in the next Bulletin detailing the raid.

There is a popular theory that Dr (later Sir) Barnes Wallis was the only person to realise the potential damage that would result if the great dams of western Germany were destroyed.

Those who saw the famous film based on the raid will remember Wallis dreaming up the idea and then going to see it put into practice despite terrifying risks - but that is not the full story.

was fine in theory, but no weapon existed that could destroy these two dams and four others on the list. Theoretical work began on exactly how this mission could be accomplished. A great many ideas were thrown up, some quite fantastic, and most impractical. Two particularly stood out - the possibility of a 'skimming torpedo' and a plan to detonate 20,000lbs (9,000kg)



Dugald Cameron's Squadron Print series has portrayed several famous Lancasters. No. 206 is Gibson's aircraft used on the Dambusters raid, ED932 'AJ-G'. Cameron's eye for detail captures the weathered appearance and the *Upkeep* weapon. Also reproduced on the print is 617 Squadron's badge and Gibson's VC.

Sir Barnes himself tried to set the record straight but the glamorised account was more interesting! Without doubt, Wallis was the prime instigator and had it not been for his genius the raid would never have taken place in the way that it did.

The truth is equally fascinating. In October 1937, a series of 13 plans, collectively known as the Western Air Plans, was drawn up by the Air Staff for implementation in the event of war with Germany. Among them, plan five, highlighted the need to attack Germany's war industry in the Ruhr. Bomber Command worked out that 3,000 sorties would destroy the war machine and bring it to a standstill. Only small bombs were available for the task at that time and one shudders at the numbers of aircrew who would have been lost in 3,000 raids on a heavily defended area.

To look into the matter in more detail, a sub-committee was formed, and it put forward the theory that if the Mohne and Sorpe Dams were breached the widespread flooding of the Ruhr valley would have the necessary effect. This

of explosive 40ft (12m) underwater by the dam wall, the method of delivery was still to be worked out.

Barnes Wallis was aware of the Air Staff paper and had been thinking along similar lines - he knew that the tremendous strength of the structures called for a vast bomb. His drawings show a ten-ton bomb lodged in the bed of the lake under the foundations of the dam, the prototype *Grand Slam* perhaps? However, there was no aircraft capable of carrying such a beast, so he set about designing a 50-ton bomber to carry it.

In 1940 he began working on ways to attack the dams and other targets in Germany, and this in addition to his job at Vickers - including developments to the Wellington and Warwick aircraft he had designed.

His paper, *A note on a method of attacking the Axis powers*, complete with all available data, was a carefully researched and reasoned plan. But, no one in high authority looked at it seriously.

(Continued on page 10)

Buy old masters. They fetch a better price than old mistresses - Lord Beaverbrook

Dambusters - Part 1 (contd)

ly until, so the story goes, the Prime Minister's office took it up (however, there is no evidence to substantiate this). In any event, a small committee was formed under the chairmanship of Sir Henry Tizard (Scientific adviser to the Ministry of Aircraft Production) to consider Wallis's proposals.

They met for the first time on Good Friday April 11, 1941 and as the meeting progressed it was obvious that the dams were the principal target.

In the meantime, Wallis was developing his theory that a missile could be designed to ricochet along the lake, and on striking the wall of the dam sink to a pre-determined depth and then explode. To test his idea he borrowed some of his daughter Elizabeth's marbles and with the help of a catapult fired them at the surface of some water in a tub. Gradually the idea of a weapon was taking shape.

Using the data gathered from the simple experiments with the tub of water, Wallis was able to work out the required curve, which in turn gave him the height and speed at which the aircraft should fly to drop the sphere. He had already decided that Roy Chadwick's new Avro Lancaster should carry the bomb.

With the help of Dr W H Glanville of the Road Research Laboratory, Wallis had models made of the dams to test his theories concerning the amount of explosive necessary. Initially, they discovered that the bomb would have to contain 30,000lbs (13,500kg) of explosive to breach an accurate scale model of the Mohne Dam. This was totally impractical and leant more weight to the spheres plan.

Following discussions with Tizard, Wallis was allowed the use of a ship model tank at the National Physical Laboratory (NPL) for further trials. For days he fired spheres into the tank and each was measured carefully. Then he introduced backspin to the skimming sphere, the effect was electrifying. These trials were carefully documented and filmed. From a cage lowered into the water an assistant filmed the sphere slowly sinking after having hit the 'dam wall' - it appeared to adhere to the surface as it sank. Eventually it was decided that the new bomb needed to be 7,000lbs (3,150kg), well within the capability of the Lancaster.

By now it was August 1942 and many more people knew of the Wallis bomb. In reality, due

to the nature of the weapon, it was a mine cum depth charge, for the purpose of this feature it will be referred to as a depth charge.

Things began to move more quickly as more officials heard about the tests and read Wallis's paper. The Royal Navy took up the idea for use against shipping, but more of that later. Wallis was given additional facilities and the use of a Wellington B.III (BJ895/G), modified to carry four 4ft 6in (1.3m) trial bombs, to be set spinning by a small hydraulic motor.

Flights took place in September to test the spinning spheres for aircraft stability. Joseph Mutt Summers, Vickers' chief test pilot was usually at the controls with R C Handasyde as co-pilot and Wallis as observer. Wallis noted in his papers that they test dropped one of the spheres in September, but official records show that the first trials were carried out on December 4, 1942 over Chesil Beach. The four bombs shattered on impact.

Wallis had the cases reinforced for the second series of tests, between December 12-15. The spheres were released from 60ft (18m) and held together, but were damaged by the impact. Although tests were inconclusive the Ministry of Aircraft Production (MAP) was sufficiently impressed to order 250 of the small spherical test depth charges from Vickers at the end of January 1943.

By now the smaller sphere was code-named *Highball* and the larger variant became known as *Upkeep* (it was still on the drawing board). Both had come to the notice of Sir Arthur Harris Commander-in-Chief Bomber Command. He had no time for inventors and when told of the bouncing bomb dismissed the idea. To be fair, Sir Arthur must have seen or heard of many weird and wonderful weapons that would help him win the bomber war, so he was naturally sceptical.

Wallis's calculations showed that the water level would be at its highest in May, just three months away - but there was still no working bomb, nor aircraft to deliver it. Then on February 10, Lord Cherwell, Churchill's scientific adviser presented another obstacle by refusing to allow design work on a modified Lancaster to go ahead.

Determined not to be beaten, Wallis showed films of the trials to War Office staff - on February

(Continued on page 14)

Tact is the knack of making a point without making an enemy - W.G.P.

Association business

Help wanted...

- The MAAA's membership numbers have dwindled over the past few years and we request your assistance to seek out a new member by passing on the enclosed information sheet and membership application form.
- Also to those members who may have overlooked their yearly subscription of \$20.00, please remember to forward it to the Treasurer.
- President and Merchandising Manager, Alan Middleton, now has a small stock of MAAA cloth badges for sale. If you are interested in purchasing some, they sell for \$10.00 including postage.



From the Mailbox

A SCIENTIFIC STUDY OF THE PROCESS TO SELECT THE SKIN FOR THE MOSQUITO AIRCRAFT AND GLIDERS

— by —

ALLEN ALCOCK. MSC [Fellow] COLLEGE OF CIVIL
AVIATION [MASCOT] CAMPUS. DEPARTMENT OF THE INTERIOR 1940-1943.

After reading our MAAA Journal, I desire to contribute my Scientific Research during the 1940's as the Department of Munitions requested that we find a suitable "Skin" for the Mosquito Aircraft Gliders, and 'Plywood Extended Range' fuel Tanks fitted to the Mosquito Aircraft, Jettison Type built with Waterproof Plywood.

Era 1940-1944 at our Scientific research Tool Room at Brims Plywood and Mascot Building "A".

Specie : Coachwood [Ceratopetalum apetalum].
Veneer `type` : Rotary and Sliced Veneer

Specie : Prickly Ash [Orites excelsa] also known as Southern Silky Oak. Where a high degree of accuracy is required for Aircraft such as the Mosquito Aircraft Timbers and Veneers specimens from at least 40 Trees are Tested. We found that Coachwood selected from Mount Seaview Compartments, as well the Species located at Lowana Dorrigo-Point-Lookout Compartments were most suitable to undergo the following Test.

Faults : Wet Spots - Silica

In the felling of Coachwood [Ceratopetalum apetalum], Trees for our Research the Middle "Bole" is selected for Aircraft Production other sections were not wasted as these were used for .303 Hand-Guard Butt- Fore-End-Bren-Gun Butt, Rifles.

Hardness : The term Hardness as applied to Timber usually means it's Resistance to `indentation` or `Penetration` and according to the 1939-1945 methods used, is to determined by `measuring the `Loads` in Pounds required to `Embed` a Steel Ball 0.444 inch Diameter to half its `Depth` using gravity as the source of energy.

Aircraft `Skin` Friction.

The influence of `Speed` of the Aircraft the Friction so generated by air, on the `Skin` was subject to the Elements of vibration when ready to Take-Off, the Merlin 25 Engines demonstrated the Power; stress relationship on the Coachwood Veneer.

The Ground Engineers were equipped to inspect the Mosquito as to any Damage to the Skin as records demonstrate that 'Air-Friction' could

Don't be afraid to take a big step if one is indicated.
You can't cross a chasm in two small jumps - David Lloyd George

From the Mailbox—contd

cause 'Blisters' by the Heat-Transfer on the Body of the 'Fin'-Front Spar.

Apart from the effect of these relatively High Temperature on the strength and rigidity of the 'face' of the exposed 'Skin-Surface'. they tend to reduce the 'Equilibrium' Moisture content which becomes a hidden hazard at high speed by the Mosquito Aircraft.

Because of Moisture gradients and then because of certain overlapping of the 'Predetermined' Moisture, the 'Skin' exposed to the elements of the Temperature, especially in the 'Tropics'.

THE SELECTION AND TEST OF THE SPECIES.

Coachwood [Ceratopetalum apetalum] Face Veneer ,Prickly Ash [Orites excelsa] Underlay.

The following will in detail explain the introduction of the Rotary Lathe in the 1939-1945 Years. The Testing of the Veneer for the Mosquito Aircraft plus Gliders. A Matter of interest to our Members, the Toughest Aussie Timber is the TASMANNIAN WIREWOOD [Accradenia frankliniae] as records demonstrate that the Tasmanian Aboriginals Elders in 1830 to locate the Tasmanian Tiger it's custom was to 'Chew

the Bark' of this specie mostly found near the Franklin River

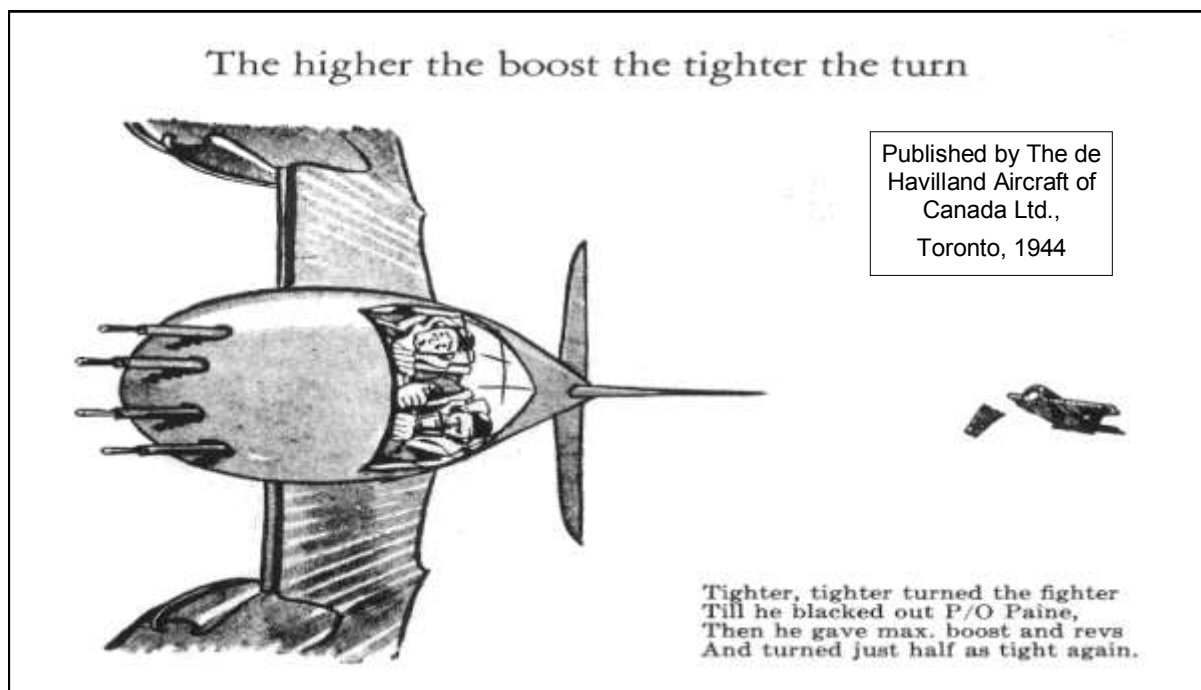
The elementary 'Aircraft' of World War 1 used Plywood extensively, but it has been made aware that it's durability in those YEARS was limited.

With the event of 'RESIN' ADHESIVES and the moldings of compound 'Curves' in Plywood by the FLEXIBLE-BAG PROCESS, plywood again became a major Research, an important factor in the Aircraft program.

Examples are the Mosquito aircraft of England and Canada and the 'TroopCarrying 'Gliders' CG-4 and CG-4a in America, notwithstanding that Germans and Russians all used Plywood 'planes' extensively.

The Minister of Munitions Mr. Makin contacted our Research 'Lab' to find a suitable 'Skin' for the Mosquito Aircraft so began our investigation to find a suitable Specie as previously stated earlier we found Coachwood and Prickly Ash.

The Minister of Munitions Mr. Makin with Mr. Brooks of Slazengers Bowden St. Alexandria a Suburb of Sydney also assisted me to Design the 'PT' Motor Torpedo Boat my own Drawings, with Federal Government assistance to present 'my' Plans to the United States Navy and accept-



Youth is a wonderful thing. What a crime to waste it on children - George Bernard Shaw

From the Mailbox—contd

ed by them.

The PT Motor Torpedo Boat is built entirely of plywood.

Coachwood [Ceratopetalum apetalum]

The Selected 'Centre of the Fallen Coachwood Tree' the Middle 'Bole' a term to describe the Log ready to be Lifted into the Big Ruckles Lathe.

Coachwood has 'Three' Compartments of the 'Log', these are Sapwood - Intermediate Wood and Heartwood. The 'Bole' selected is the INTERMEDIATE WOOD still subject to the 'ELEMENTS' of Growth defects such as Iron Spots, 'Wet Spots' [Hydrophobic] elements.

The Veneer -Rotary and 'Sliced' is subject to the Inspectors at the Veneer Clipper whom use a NO-GO and GO Gauge for thick-thin and any 'Wet-Spots' in the Veneer.

The Veneer that has passed these Inspectors traveled onto the Veneer Kiln ,finally made into 'TWO-PLY' Plywood 'Skin' designated for the Mosquito Aircraft and Gliders.

We should always pay a 'tribute' to D.G.BRIMS whom played a big Role in the Scientific assistance to Me in the selection of Coachwood/ Prickly Ash laminate for the Mosquito Aircraft, but the Company D.G.Brims Plywood Factory mill at YEERONGPILLY Brisbane a modern Plant was destroyed by Fire in 1943.

Wood is 'Polar'-Metals are Non-Polar.

Liquids: Polar and NON-Polar.

1. The attractive forces between molecules and Atoms in my studies, the Forces that exist between them as these 'Forces' are found to be two distinct elements 'Polar and Non-Polar' Liquids of these Element Forces will not Mix.

2. A Phenol-Formaldehyde adhesive such as 'Tego' Film is strongly Polar: wood is Polar; Metals are Non-Polar so joints with this adhesive are stronger between two Veneers provided no Bleed Through Problem.

Joints with this Adhesive are far stronger between Two Veneers than between Wood and Metal.

In Aircraft Production any Metal Component must be 'Dipped' in 'Wax' or as we preferred Bee's Wax to compensate for Co-Efficient of Expansion and Contraction also the use of this Method eliminated 'Fungi'!

You may find in the Mosquito Aircraft and Gliders Saturated 'Cotton Cloth' mixed with Phenol-Formaldehyde of a Resin saturated with a Catalyst to cover the Metal Components.

This is what we name a Cloth-Veneer combinations as any Metal Components are Solvent degreased or Acid Etching.

Temperature on the Face of the 'Skin' for the Mosquito Aircraft are subject to many elements whilst the Veneer is Produced by the Lathe when the 'Nose Bar' with the 'Horizontal' Bar became very Hot, causing Friction to the Bole. At Brims Mill -Hancock and Gore-Ralph Symonds all the Lathes were 'Water Cooled by Pressure of Cold Water connected to the Nose Bar as we Found that this Method reduced Thick-Thin Veneer also reduce the Veneer becoming Hydrophobic.

Well I do trust this Contribution by 'Tex' Alcock could explain the many Methods to build a Mosquito that could withstand the Skin to Conquer the Vibrations of the Two Merlin Engines, and the High Speed this Aircraft could 'do' a 'Mission' and return to Base !.

Should any member of our Association would be interested in the machinery used I would be delighted to supply the Modern Woodworking Machinery of the 1940-1945 Era Details of Operation. Machines brand names—Ruckles-Wadkin-Oliver, Thornley—Robo & Wadkin Six Headers-Onsbud-Radio Frequency Gluing-Blades as to balance at 7,500 R.P.M.-all helped to manufacturing the Mosquito Aircraft—Gliders—Fuel tanks etc.

Alcock-Lascelles
Scientific Research Laboratories
Allen Alcock JP CCASc FORSc FAIWM
Glenfield NSW 2167 Australia
Ph 02 9605 6258 Fax 02 9605 6258.

You should never count your chickens before they're hatched - but it's a lot easier - P.K. Shaw

Dambusters - Part 1 (contd)

(Continued from page 10)

19 Sir Dudley Pound, First Sea Lord and Air Marshal Sir Peter Portal, Chief of Air Staff, suggested that Harris look closer at the matter. Harris sent G/C (later MRAF Lord) Elworthy, his G/C Operations, to see Wallis at Weybridge. Elworthy was convinced and eventually persuaded Harris to see Wallis and his films. The two men met on February 22 at Bomber Com-

until he heard him say that the dams "would be attacked in May". There were barely eight weeks to finalise designs for the Lancaster *Highball* (*Upkeep*), carry out trials and have the weapon ready for a new squadron to be specially formed for the task.

Roy Chadwick was to have design responsibility for the 20 specially modified Lancasters - to be known as 'Type 464 Provisioning Lancasters -



W/C GP Gibson VC centre with David Maltby on his right and Mick Martin on his left

ordered from A V Roe and Co. By this time *Upkeep* had been slightly reduced in size to fit the Lancaster's bomb bay and Wallis was working 16 or more hours a day, seven days a week to get the depth charge ready in time. Sir Arthur Harris was true to his word and gave his full support. He personally chose W/C G P Gibson DFC DSO, then commanding 106 Squadron at Coningsby, to lead the raid and gave his 5 Group commander Air Marshal Hon (later ACM Hon Sir) Ralph Cochrane operational control.

mand HQ High Wycombe and though Harris was annoyed at being told to see Wallis by Portal, he gave his backing - though guardedly at first.

Events took a turn the next day. Wallis was summoned to London to see the head of Vickers, Sir Charles Craven. He told Wallis that work on the dams must cease and that he (Wallis), "...must stop making a nuisance of himself". Wallis was devastated. Craven was an old friend and the mildest of men, yet here he was giving him a true wiggling. Barnes Wallis offered his resignation to which Craven shouted "Mutiny!" Wallis returned to work, unsure of the future. He received a letter on February 25 asking him to attend a meeting at MAP the following day, where among others present would be Roy Chadwick, Avro's chief designer. Wallis was sure that this was to be his 'official' telling off and hardly listened to AVM Linnell's remarks

Guy Gibson completed his 173rd operational flight on March 15, 1943 and was looking forward to a well-earned leave in Cornwall with his wife Eve and their faithful black Labrador, Nigger. This plan was shattered when he was told to report to 5 Group Headquarters at Grantham immediately to take up a 'staff job'. Gibson was less than pleased, but nevertheless set about forming a new squadron.

Cochrane based his new squadron at Scampton where the commanding officer was the well-known G/C Charles Whitworth. 'Squadron X', as it was known, moved in - men and supplies continued to arrive for days afterwards. Gibson later recalled 'hopeless cases' from other squadrons being posted to him as a method of getting rid of them - they were all sent back immediately. It was not until March 24 that the new unit was given its squadron number-617.

Meanwhile, work was progressing with *Upkeep*

Having "one for the road" could mean having a police car for a chaser - W.G.P.

Dambusters - Part 1 (contd)

and the Lancasters. The first full-scale drawings of the depth charge were completed on February 28 and on March 4 the first *Upkeep* trials were carried out over Chesil Beach using Wellington BJ895/G. Four days later, Roy Chadwick signed the conversion order for the Lancasters. Naturally, the alteration work was top secret so the design office was only given various parts to draft, no one except Chadwick, knew what they were for. By this time it was decided to convert 23 Lancasters for the operation, code-named Chastise.

On the day that '617 came into official existence, March 24, Gibson visited Barnes Wallis for the first time. Gibson only knew that it was to be a special target and the weapon would be released at low level - he assumed Wallis would give him the 'gen'.

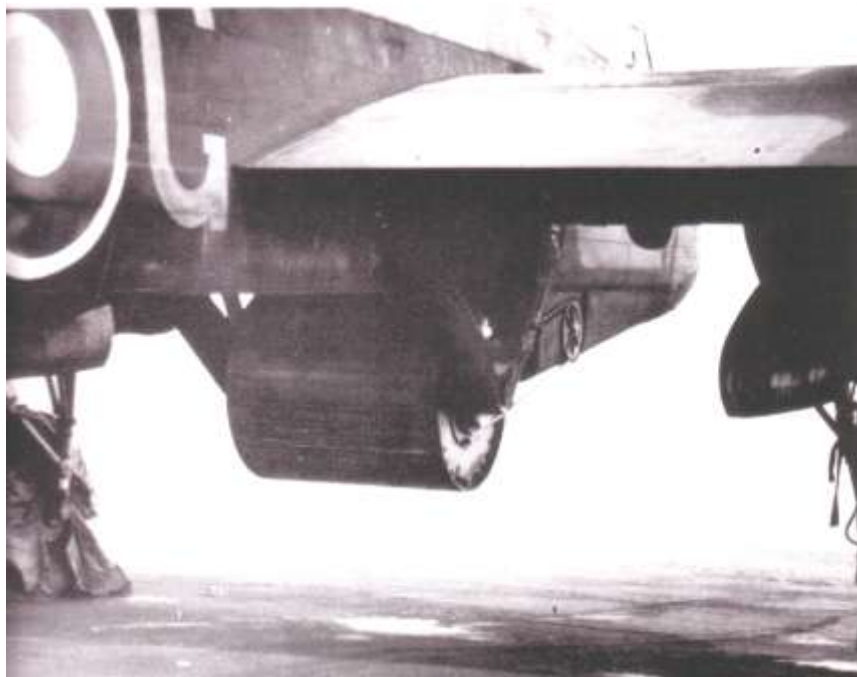
Wallis was horrified when he realised that Gibson knew nothing of the target, and without revealing this information he explained as much as he could about the weapon. Gibson was shown the *Highball* films and was impressed as he watched the incredible sphere skip across the water. After an unpromising start, the two men warmed to each other and a trusting relationship developed.

On March 27, 617 began training using ten 'borrowed' Lancasters to practise low-level cross-country flights over Lincolnshire.

Gibson had been told to fly over water, so he assumed the target to be the Tirpitz hiding in Norway. He chose routes over the Wash and over the Lake District, some local reservoirs were also utilised. Training was hard and although many of the aircrew had come from operational tours they showed no signs of slackness, indeed low-flying experts like F/L H B (later AM Sir) Mick

Martin DFC seemed happiest when he was flying 'on the deck'. Training continued, but at dusk it became difficult to judge the height over water. Electronic altimeters were considered and rejected due to the time factor involved. Wallis had told Gibson the depth charge had to be released from 150ft (45m) at 240mph (384km/h) after a dive from 2,000ft (600m). This was proving harder than they imagined and Gibson had still not been informed of the target.

On March 29 he was summoned to Cochrane's office and shown models of three large dams, but he still did not know where they were. Later, Wallis put him in the picture at a meeting. Slowly, even though there was little time left before the raid, things began to fall into place. Training continued but keeping the height at 150ft (45m) was proving troublesome. Standard altimeters are inaccurate at such heights, and though other ideas were considered, none were ideal. Then an old World War One trick was suggested by Bernard (later Sir Bernard) Lockspeiser, Director of Scientific Research at the MAP. He remem-



Upkeep is fitted to AJ-G with the drive belt connected to spin the weapon. Note the size of the weapon and the V struts holding it.

bered that they fitted spotlights to aircraft to determine height and so back at Farnborough he looked at mounting lights underneath each wing tip of the Lancaster to shine down and converge

When written in Chinese; the word crisis is composed of two characters. One represents danger and the other represents opportunity - John F Kennedy

Dambusters - Part 1 (contd)

at the appropriate height. Unfortunately, the lights would not be visible from the cockpit, so he fitted one lamp in the nose, just aft of the bomb-aimer's panel and another at the centre of the aircraft, some 20ft (6m) apart. They would be configured to merge into a figure eight at the height of 150ft (45m) and the beam would be clearly visible from the cockpit blister on the starboard side of the Lancaster. Trials over Lake Windermere, Cumbria, proved effective, but the new system also meant that the aircraft was far more visible to the enemy.

Training continued and to add realism Derwent Dam at Sheffield, which resembled the Mohne, was used for practise.

Work had proceeded at Avro and Sam Brown flew the first of the converted Lancasters, ED765/G, from Farnborough on April 8. The mid-upper turret and bomb doors had been removed and these, together with the removal of most of the armour plating and other smaller fittings saved more than half a ton of weight. However, much of this saving was lost when Avro fitted the V struts (to hold *Upkeep*) and Vickers added other equipment.

ED865/G was test flown at the same time and was delivered to Scampton the same day, but it was not a complete Chastise Lancaster. Time was running out so the aircraft were finished at Scampton and not as originally intended by Avro and Vickers.

On April 11, Gibson took F/L R C Hay DFC, his bombing leader, to Reculver Bay near Margate to watch trials of smaller versions of the weapon. Sam Brown was flying the Lancaster that dropped the depth charge - it sank on impact. Later that day, Summers made another drop, the depth charge exploded as it struck the water and part of

the wooden casing flew up and wedged into the Lancasters elevator, jamming it fast. Summers was a very experienced pilot and eased his aircraft back to Manston making a perfect, if studied landing. On another run the casing shattered but the steel depth charge continued on its way.

Wallis was not happy with these results and set about making alterations.

Gibson and Hay went back to Scampton to continue training. As Gibson was away for much of the time, his deputy leader S/L H M Young DFC took over the main training and administration duties.

To aim the mine W/C C L Dann of Boscombe Down devised a simple bombsight. Basing his calculations on the fact that the sluice towers of the Mohne Dam were 700ft (210m) apart he made a triangular wooden sight with a peep-hole at the apex and two nails at each extremity. The bomb-aimer looked through the peephole and when the nails were in line with the towers he pressed the bomb release button. Many of the bomb aimers used the Dann sight, but many more devised their own methods, from using string tied across the Perspex panel to Chinagraph pencil markings on the bomb-aimer's blister. Gibson and his bomb-aimer P/O F M Spafford DFM tested the Dann sight on the dam at Sheffield - it worked!

On April 18 Summers dropped more trial weapons. Two sank without trace and one broke out of its wooden casing. Wallis decided to delete the outer case. It must be noted that as yet, only scaled-down versions of *Upkeep* were being dropped. The next set of trials on April 21 was also unsuccessful as the weapons either sank or

(Continued on page 18)

You learn something every day... from Brian Fillery

In the 16th and 17th centuries, everything had to be transported by ship and it was also before commercial fertilizer's invention, so large shipments of manure were common. It was shipped dry, because in dry form it weighed a lot less than when wet, but once water (at sea) hit it, it not only became heavier, but the process of fermentation began again, of which a by product is methane gas.

As the stuff was stored below decks in bundles you can see what could (and did) happen. Methane began to build up below decks and the first time someone came below at night with a lantern, BOOOOM! Several ships were destroyed in this manner before it was determined just what was happening. After that, the bundles of manure were always stamped with the term "Ship High In Transit" on them which meant for the sailors to stow it high enough off the lower decks so that any water that came into the hold would not touch this volatile cargo.

Thus evolved the term "S.H.I.T", (Ship High In Transport) which has come down through the centuries and is in use to this very day.

Growing old is like being increasingly penalised for a crime you have not committed - Anthony Powell

Vale

It is with regret that the Association must relay the passing of the following members:

LANGSFORD, Ron (DFC)
of BURWOOD, Victoria.

ROWELL, Robert (DFC)
of BRIBIE ISLAND, Queensland.

TAYLOR, Lawrie
of DANDENONG, Victoria

The Association's condolences go to their families.

New Members

The Association is pleased to announce and welcome the following people who have joined:

HUTTON, Lyn of MT WAVERLEY, Victoria

KEMP, Shaun of EAST BRISBANE, Queensland

LANGSFORD, Bryan of VERMONT SOUTH, Vic

SEARLE, Richie of WINTON, Queensland

TAYLOR, Chris of WHEELERS HILL, Victoria

Welcome to you both, we hope you have a long, enjoyable association and take an active interest in the restoration of A52-600.

Apology

The "**Vale**" notice in the last Bulletin (No 43) was incorrect.

The wives and addresses of Stan LONG and Bob HELMORE were inadvertently jumbled.

It should have read :

HELMORE, Robert Frederick of KATUNGA, Victoria and
LONG, Stanley Grenville Wilfred of BLACKBURN SOUTH, Victoria

Bob's wife's name is Elma and Stans's wife is Helen.

My sincere apologies go to Bob and Stan's families for my error.

Ed.

Increased drag at the wing tip...



If you want people to think well of you, do not speak well of yourself - Blaise Pascall

Dambusters - Part 1 (contd)

(Continued from page 16)

shattered on impact.

Upkeep was a cylinder 50in (125cm) in diameter and 60in (152cm) long. It was filled with 6,600lbs (2,970kg) of Torpex charge detonated by three hydrostatic pistols at a depth of 30ft (9m) with a 90 second time fuse set in the aircraft at the time of release. The total weight with casing of *Upkeep* was 9,250lb (4,162kg).

Wallis came to the conclusion that the depth charge would have to be dropped from a lower level. On April 24 he met Gibson and asked if the 6,000lb (2,700kg) weapon revolving at 500rpm could be dropped from 60ft (18m) at a speed of 210mph (336km/h). Gibson was taken aback, but he had faith in Wallis and agreed to the new demands.

Scampton technicians realigned the spotlights and training continued, with an additional altimeter fitted at eye level for the pilot so he would not need to look down at the instrument panel.

S/L M V Longbottom flew the fourth series of test drops at Reculver on April 28. He dropped the weapon, spinning at 500rpm, from 60ft (18m) at a speed of 250mph (400km/h), it fell smoothly and bounced six times. Wallis was delighted and, as Gibson recalled danced on the shore with joy. Further trials later in the week were equally successful and it would ap-

pear, from witnesses, that a full size version was dropped, but records are unclear about this point.

A few days before these trials, the first of the Type 464 Provisioning Lancasters began to arrive at Scampton, a total of 19 aircraft, although others were converted and used on trials at Farnborough, Reculver and Boscombe Down.

On May 7, ten days before Chastise actually took place, all leave was cancelled, although at this time the dams were due to be attacked later in the month, on May 26.

Then on May 13, Longbottom dropped a fully armed *Upkeep* that bounced seven times and for the first time kept on track without deviation.

Early on May 15, Gibson's much loved dog Nigger was killed by a motorist outside the main gate at Scampton, the driver did not stop. The dog was taken to the guardroom and the news broken to Gibson. He asked that Nigger be buried at midnight when he would be attacking the dams. Nigger's grave is still at RAF Scampton just outside the office used by Gibson.

Part 2 of this article covering the raids on the dams will be published in the next Bulletin.

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Every animal leaves traces of what it was;
man alone leaves traces of what he created - Jacob Bronowski