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# LIFE



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**COVER PHOTOGRAPH**  
By Hilaire Dubourcq

HELICOPTER LIFE is published quarterly by FlyFizzi Ltd.  
59 Great Ormond Street  
London, WC1N-3HZ.  
Copyright © FlyFizzi Ltd. 2005.  
ISSN 1743-1042.

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In Sweden they are attempting to use the spare parts of cows and other animals to make fuel for trains, so when Tony Marmont suggested an article on alternative fuel sources for aircraft the timing seemed absolutely right. However, I never expected to find alternative sources of fuel were such a controversial subject. One focal point for this seems to be Stanley Meyer's research on the use of water as a fuel, the court case he was involved in and his final death at a relatively young age, some say by poisoning, and conspiracy theorists even suggesting government interference. Less controversial, perhaps, is Dr Matthew Leach's work at Imperial College with 'sunfuel' which uses a Fischer Tropsch process to convert wood to a liquid fuel, which is then converted to 'sundiesel' suitable for cars and possibly also for aviation. In reality, as we can see from Tony's article, alternative fuel sources are not only interesting and exciting but inevitable; we are running out of oil, we will need more sources. However, as many cynics and skeptics point out, the car industry is not yet ready for alternative fuels and national governments do not seem to be pushing as hard as they could for new methods. Stan Meyer's hydrocar is one of those new methods, but, like much of the 50s and 60s experimentation there is uncertainty about how well it will work and apparently no money to push it through to its conclusion. The one method that does seem to be standing the test of time is Fischer Tropsch but real testing with aircraft still has to be done.

Equally new, but considerably less controversial, is the sleek EC155B1 G-NIVA from Lanthwaite Aviation, which we flew to the Hanbury Manor Hotel on a test flight. This elegant



machine is the first EC155B1 on the British register, one of only three in the country, it has a range of around 430 nm and is available for charter.

To mark its arrival on the British register G-NIVA was at HeliTech in September, as were a host of new and entertaining ideas, including a variety of helicopter simulators, a chance to hangar your machine in a balloon built by Per Lindstrand, or, if you are going to leave it outside, to get a cover from the new owners of Cover Copters. If you want to change the shape of your MD500 then the Nordam Group have some suggestions, an IFR machine was unveiled by Bell or if you want a cheaper new machine both PZL Swidnik from Poland and Kamov from Russia have the helicopter for you.

Flying abroad is well covered with Alan Norris visiting the heli-operators in Australia, Gill Jenkins the team doctor writing about the World Helicopter Championships in France with Russian and British winners, and Helicopter Life seeing the new Malta-Gozo shuttle. Kate Crewdson, now fully qualified as a doctor, writes about flying with the London Air Ambulance. Happy Christmas.

*Georgina Hunter-Jones*



# Reflections on a Life in the Rotary World

The Lord Glenarthur ruminates

Goodness knows how, as a boy, I developed an enthusiasm for aviation. Probably living in Ayrshire not far from Prestwick Airport, then a large USA military base I was exposed to aircraft of all sorts. Aircraft there ranging from B29s to B36s even the giant Convair B36. Helicopters too. I remember an early version of the USAF Whirlwind performing interesting manoeuvres on the other side of the river from our farm, the crew demonstrating their skill to one of their family living in a neighbour's let cottage!

When I joined the Army and my Regiment in 1963, excitement was generated by visiting generals arriving on the lawn outside the officers' mess in Skeeters or Alouette 2s. This enabled fairly regular contact with pilots, many of whom turned out to be Cavalry officers on secondment. About this time an experiment was set up based with the Queen's Dragoon Guards, at Wolfenbuttle, with a reconnaissance flight of Skeeters. This was to be a precursor for the introduction to all regiments, of Air Troops of 3 light helicopters and, in the case of the 4 armoured reconnaissance regiments, squadrons of 6. The pilots of the experimental reconnaissance flight of the QDGs were most apparent at polo matches at Bad Lippspringe. In those heady days of summer in 1963, the tram-

pling in of the divots was much enlivened by the sight of several Skeeters conducting torque turns and various other manoeuvres over the polo ground. Those were the days!

In 1964, whilst my regiment was converting from tanks to armoured reconnaissance at Tidworth, I was on exercise in Dorset and the opportunity arose at short notice to be bundled to the back of one of the earlier Scout helicopters and flown some distance to a meeting; my first flight in the rotary world, and what excitement. Coupled with the possibility that my regiment was likely to be one of the first to be equipped with the new light helicopters, to be known as the Sioux (Bell 47 G3B1), I immediately made enquiries about being released to undergo army pilot training. This was declined on the grounds that it was important to become a fully trained and qualified Troop Leader before embarking on flying. In any case, there were those who poo-hooped aviation as 'not exactly an officer's sport', one likely to distract one from the main purpose of soldiering and damage any potential one had for a military career! However, when the regiment deployed to Aden in 1965, I was lucky to find myself in much more of an aviation atmosphere because we shared our barracks and officers' mess with the resident aviation squadron of the Army Air Corps based at Little Aden. They were equipped with Beavers and Scouts. I grabbed any opportunity to fly as a passenger in the Beaver and became

intrigued by the apparently relative independence of the pilots, that they were able to leave the sticky atmosphere of Aden itself and fly to the much more comfortable climate 'up country' and that they seemed to be a special bunch of people who could get away with absolutely everything!

A number of hair-raising flights with various pilots in Scout helicopters increased my enthusiasm. An instance which springs to mind was when I was given a lift to Aden after a particularly jolly night at Habilayn. The pilot told me to ensure that I sat in the left-hand seat and the Brigadier was to sit in the back. Evidently this chap was something of a pain in the neck and didn't much like flying anyway. At a convenient moment I was to reach forward and press the test button on the central warning panel. The lights would flash, the lever would be dumped, and my clear instructions were to open the Pilot's Notes at the red section marked Emergencies and read out the necessary actions! We did this somewhere over the desert having dropped a few thousand feet and 'deciding that all was well' recovered to normal flight and whoever the officer in the back was, he kept quiet for the rest of the trip. Another occasion was when the same pilot discovered in the middle of nowhere whilst supporting my troop of armoured cars that his Scout starter/generator failed, something to do with a P2 switch if I remember correctly and a bit of self-help!

*(To be continued in the next issue)*

## Youth Flying Bursaries

Dear Editor,

The Royal Aero Club Trust charity has launched the 2006 youth flying bursary programme this week. Each bursary of up to £500 pounds is available to anyone between 16 and 21 years of age wishing to progress their interest in either air sports or aviation. Applicants must be UK citizens and have their application in by 31 December 2005.

The Royal Aero Club Trust has been running the programme since 2002 and more than 46 aviation enthusiasts have been awarded bursaries. A wide range of activities are incorporated in the programme and include aero-modelling, paragliding, hang gliding, parachuting, ballooning, gliding, flying microlight, fixed wing and helicopters.

Training and flying can only be conducted at Clubs, Associations or training establishments in the UK. Applications, which must arrive at the Trust by 31 December 2005, are to be submitted by post through a Sponsoring Organisation, Club or Association.

Full details, rules and an application form are available on the Royal Aero Club Trust web site, [www.roy-alaeroclubtrust.org](http://www.roy-alaeroclubtrust.org)

**Paul Smyth**  
Royal Aero Club Trust

## Early Aviator's Licences

Dear Georgina,

We are trying to locate the whereabouts of some unique and historical documents concerning 'early' Helicopter Licences and would greatly appreciate it if any readers had any information on this subject.

The Royal Aero Club stores its collection of archives, albums, paintings and trophies at the RAF Museum, Hendon. These archives include albums with details of application for RAeC Licences for:

59 Great Ormond Street, London WC1N-3HZ, England.

Telephone: 020-7430-2384, Fax: 020-7430-2384, Email: [editor@helicopterlife.com](mailto:editor@helicopterlife.com)

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RAeC Aeronauts' Certificates (the first one was issued June 14th, 1905), for RAeC Airship Pilot's Certificates (the first one was issued February 14th, 1911); RAeC Aviators' Certificates (the first one was issued to J T C Moore-Brabazon, later Lord Brabazon on March 8th, 1910).

These records include details such as name, date of birth, date qualified and uniquely photographs of the applicant. Since there are no copies of these unique documents the RAeC Trust is arranging for microfilm copies to be made. This film has a 250 year life when stored in an temperature controlled environment. Digitised copies will be made to enable this information to be available to researchers, relatives and the general public.

We know that a similar register or album was compiled for RAeC Helicopter Aviators' Certificates.

These early entries were :

No. 1. R A C Brie (British) Date of issue March 14th, 1947

No. 2. J L B H Cordes (British) Date of issue April 29th, 1947

No. 3 R N Liptrot (British) Date of issue May 22nd, 1947

No. 4 Not issued.

No. 5 L S Amandias (French) Date of issue May 23rd, 1947

No. 6 Not issued

No. 7 A E Bristow (British) Date of issue June 19th, 1947

No trace can be found of this register or album at the RAF Museum, Hendon, nor at any of the following Royal Aeronautical Society nor at the Secretariat of the HCGB.

The Trust wants to ensure that these records will be safeguarded for

the education and enjoyment of future generations and would greatly appreciate any help in trying to find these records. If you have any information please contact: Fred Marsh, Chairman, Royal Aero Club Trust, 16 Albany Court, Palmer Street, London SW1H 0AB tel: 020-7222 4017 or via email: [chairman@roy-alaeroclubtrust.org](mailto:chairman@roy-alaeroclubtrust.org)

**Fred Marsh**

## Cosmo Girl

Dear Georgina,

As you may recall I sent you an e-mail about my daughter Hannah flying solo on her 16th birthday. At the time you kindly ran a short piece about this achievement and we are grateful for your interest.

I am writing to tell you that Hannah has completed her training, in the minimum of 45 hours, and took her skills test on Sunday 25th September, one month before her 17th birthday.

We have just heard from the CAA that they will be issuing her licence on her birthday (24th October) and I must comment that they were both helpful and excited!, as she will be the youngest female helicopter pilot in Europe.

She was also selected as one of the 'Teenagers of Achievement' by Cosmo Girl, which is the teen version of the Cosmopolitan magazine.

I thought the above might be of interest to you as it has definitely promoted general aviation, and in particular rotary wing flying to a wider audience.

Kind regards,

**Paul Sanders**  
(Proud Parent)



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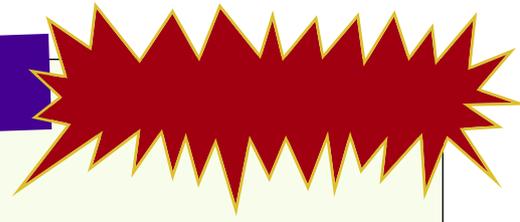
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## Loggers have a Grizzle

When United States District Court Judge Donald Molloy issued a ruling that loggers couldn't salvage timber from units with core grizzly habitat, it resulted in the Forest Service officials grounding all the helicopters in entire logging units even if they had as a little as an acre of core grizzly habitat in them.

However, now the ruling has been clarified: It's just not allowed inside the core habitat boundaries. The ruling is about the Endangered Species Act because it has the potential to disturb grizzly bears in their key habitat. The case could rest on whether helicopter logging of an area is considered 'motorized use'. The bulk of the salvage logging is helicopter logging (logs are cut down by sawyers on foot, then picked up by helicopters, which fly them to trucks to be picked up and taken to mills).

The use of helicopters is actually far less intrusive than other traditional logging means, which use ground equipment. Forest Service rules set standards for 'motorized use' under traditional methods of logging, but the use of helicopters hasn't been challenged up until now. But ultimately, it may be up to Molloy to say whether it is or isn't.

## Can you design a Flying Car?

If so NASA wants to hear about it, The space agency is offering \$250,000 in prizes. The Personal Air Vehicle Challenge will pay \$25,000 each for advances in noise control and handling qualities. The biggest reward, \$150,000, would recognize a vehicle with two to six seats that can fly at least 130 mph for a 300-mile range while being fuel-efficient and making good time door-to-door. The idea, NASA engineer Mark Moore said, is to encourage 'chaotic'

research. "We think we understand the problem at NASA, but we could be wrong," he says.

## Purple Language in Purple Airway

An American Airlines MD-80 had to make a go-around at Chicago's O'Hare Airport after two helicopters which were departing with President Bush's party strayed into its approach path. The two helicopters, carrying press and staffers, were heading north near the runway centerline as the airliner was landing to the south. The airline pilot aborted the landing and climbed out to the left. The two helicopters also made left turns. A source said there was 'language' used by several parties.

## Who stole the Wing?

A pilot and passengers (including two aircraft mechanics) on board a Cessna 210 flew the plane for two hours without realizing that a five-foot section of one wing was missing. The unnamed pilot, from a community called Dozy (in Ireland) apparently hit a tree on take off from an Irish airport on his way to deliver the mechanics to a broken Boeing 767 in Portugal. The collision took off more than a third of the wing, including a fuel tank. It wasn't until the plane ran low on fuel over the English Channel that the pilot realized something was wrong and made an emergency landing at Jersey International Airport. The pilot remembered the

take off collision but said he thought that the plane had just been "struck by a little bird."

## Chute me down in Flames

Powered parachute pilot Don Beatty, of Great Falls, Montana dangled upside down from the seat of his machine for almost three hours after the chute got tangled in a 230,000-volt power line near Great Falls. He was finally rescued by a crane after emergency crews debated about how to get him down without killing him. Beatty said, "I just screwed up. I've been flying around here for seven years. I was watching combines harvest a field below when I flew into the line." He was tired and cramped but otherwise unhurt.

## Voila! Concord-ishi!

The Japan Aerospace Exploration Agency (JAXA) Japan's space agency is working on a supersonic design that could replace the gap left by the end of Concorde flights. Tested over the Australian desert, the unmanned mock-up was launched from a booster rocket, accelerated to Mach 2, and returned to the ground under a parachute. JAXA is working under a joint agreement with France,

*(Continued on Page 11)*

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(Continued from Page 9)

formerly involved with the British in supersonic development. The plan aims to build a jet that could carry 300 passengers from New York to Tokyo in under six hours, as soon as 2015. Japan conducted a similar test in 2002 that failed when the test aircraft separated from the rocket prematurely and crashed. Ah, so.

### Open Season on Parachutes

The war on drugs hit new heights on the Afghan/Tajikistan border as Tajik officials boasted they'd finally stopped an aerial smuggler they'd been trying to shoot down for three years. That the aircraft of choice by the smuggler was a powered parachute apparently did little to diminish the sense of accomplishment by the ground-pounding border guards. The guards apparently shot the chute down in mid-August but they didn't get the pilot, who was reportedly injured in the landing.

### Middle Wallop needs Funds

At the end of September the Museum of Army Flying at Middle Wallop hosted an excellent Beating the Retreat party to raise funds for the museum in the presence of their patron His Royal Highness Prince Michael of Kent. The museum, which has been supporting aviation for fifty years is now in need of support itself for a major restoration. Anyone interested in helping see [www.flying-museum.org.uk](http://www.flying-museum.org.uk)

### Ding Dong for Bell

Bell helicopters had an advert by Team Osprey withdrawn when the Council of American Islamic Relations complained, says The Daily Telegraph. The full page colour advert showed American soldiers abseiling on to the roof of the 'Mohammed Mosque' with the

words: "It descends from the heavens. Ironically it unleashes hell."

Bell Helicopters said that the advert had been approved by staff but they had not had the authority to do so. The advert was immediately withdrawn after the complaint.

### Helping New Orleans

Despite beauracratc obstacles, hundreds of volunteer pilots and their GA aircraft contributed to the New Orleans relief effort. This included Civil Air Patrol pilots who live in Mississippi, who flew all day and returned to homes damaged by the storm. "These people have drawn on some inner strength to get the job done," said Maj. Owen Younger, overseeing operations in Jacksonville, Miss. Even the vintage aircraft of the Commemorative Air Force helped the aid effort. A CAF R4D (a Navy version of the DC-3) based in Lancaster, Texas, delivering freight from Austin to Hammond, Lancaster. Most of the crew members flying the 60-plus-year-old airplane were age 70 plus.

### Flying Bullets!

An instructor and his student were flying a gyrocopter at about 800 feet over Springville, Utah, when they felt a

'pop' and thought something must be wrong with their machine. During the ten minute flight back to the airport, they heard a strange whistling sound, but the controls responded as normal and they were able to fly the machine. On landing they were stunned to discover a bullet hole in one of the rotor blades.

Then a few weeks later on a Saturday night, a sheriff's helicopter flying above an Albuquerque neighborhood to investigate a burglary was hit by a bullet that shattered the windshield. The pilot said he heard a pop and the helicopter lost power. He was able to land the aircraft in a backyard, but tore down trees and a fence along the way. "Someone down there is clearly hoping that we up here come down and join him," he said.



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# London's Flying Doctors

## Air Ambulance in and around the metropolis

BY KATE CREWDSON

The use of helicopters in medicine has escalated over the last decade, with most regions in the United Kingdom now operating their own Air Ambulance Service. Accidents and injury can affect anyone at any-time. Trauma is the leading cause of death in people aged fifty years or less, accounting for more than nine thousand deaths annually. Previous research has suggested that as many as one in three people involved in accidents die unnecessarily because of the delay in receiving prompt and appropriate medical care. The con-

cept of the Golden Hour is a focal point for any emergency service. This term is used to describe the first hour immediately after injury has occurred. Early medical intervention occurring within this time frame is critical, and considered to be associated with the highest chances of survival for trauma patients. Helicopters enable doctors and paramedics with specialist training in pre-hospital emergency care to respond rapidly to the emergency call and initiate treatment within the golden hour. Life saving interventions are carried out on scene, rather than wait-

ing until the patient reaches hospital. The London Helicopter Emergency Medical Service (HEMS), also known as the London Air Ambulance, undertook its first mission in May 1989. The service was originally set up in response to the publication of a report by the Royal College of Surgeons, which severely criticised the care that major trauma patients received in the UK. HEMS London has developed over the years under the direction of consultants and staff involved with the service. It is now one of the leading trauma services in the world.

LONDON AIR AMBULANCE

Since becoming operational over fifteen years ago the service has undertaken more than 15 000 missions; trauma deaths in London and the M25 area are reported to have fallen by more than 50%. HEMS London has proved its worth time and again, most recently during the London Bombings where the helicopter was invaluable in transporting medical teams and equipment to the incident locations. The service has also attended rail crashes in Paddington, Southall, and Potters Bar, the Soho bombings, hundreds of road traffic accidents, and many other episodes of traumatic injury occurring in and around London.

G-EHMS, a McDonnell Douglas 902 Explorer, is based on the roof of the Royal London Hospital in Whitechapel during daylight hours. The Explorer has been operational since October 2000. The original London Air Ambulance, G-HEMS, a Dauphin 365N helicopter flew from 1989 – 2000. The helicopter team consists of two highly skilled pilots, a doctor with specialist training in pre-hospital emergency care, and a flight paramedic. Fire crew are present on the helipad during operational hours to ensure the safety of all concerned and assist with patient handling. The helicopter is tasked by a flight paramedic based in Central Ambulance Control (CAC), who searches through more than 3500 emergency calls received daily by the London Ambulance Service to find accidents and incidents warranting the activation of HEMS. Stringent dispatch criteria target only major trauma. The helicopter is predominantly tasked to incidents in and around central London, within the M25 boundary, which can be reached in approximately 10-12 minutes. If requested by another ambulance service, the team may be required to travel further to answer the out of county call.

The aircraft is flown by two of the five pilots employed on a full time basis by Virgin HEMS London Ltd, one of the major sponsors of the London Air Ambulance. The pilots come from a mixture of military and civilian backgrounds and all hold an airline transport pilot licence for helicopters – ATPL(H), along with instrument ratings and twin engine time. The minimum number of flying hours required to become a pilot for HEMS London is 2000 hours, with 1500 hours as pilot-in-command, and 1000 hours on helicopters. Medical training is not required!

Safety is a key issue for any air ambulance and HEMS London operates to the highest safety specifications. The type of helicopter used in the role of air ambulance is

selected with this in mind. The Explorer is a twin engine machine and therefore in accordance with requirements for operating over a built up area. It does not have a tail rotor and the main rotor disc is high, making it safer for the crew, and for the public who will often gather in large numbers at incidents to which the aircraft is sent. Noise can become problematic because the helicopter operates at low altitudes, hence the choice of helicopter as the Explorer is noted for being one of the quieter twin engine aircraft.

The nature of the work undertaken by the helicopter and its crew requires special dispensation to operate outside rules and regulations determined by the Civil Aviation Authority (CAA).

During flight the helicopter operates with either an alpha or an echo call sign. Alpha means the crew are responding to an emergency and therefore permissions and exemptions enable it to operate outside Class I performance regulations. An echo call sign implies a positioning flight, no exemptions are granted in this instance. One of



Virgin's G-EHMS above the London streets waiting a call

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the predominant areas requiring exemption from normal operating procedures is that of landing sites. The helicopter is permitted to land at the nearest safest site to the accident scene to which it has been tasked. The minimum area required for landing is twice the rotor diameter, which is 23 metres for the Explorer. If the helicopter is landing on a road it must be closed in both directions by the police before it is considered safe to land.

The day to day running of HEMS London is directed by guidelines laid out as standard operating procedures (SOPs). The doctors, paramedics, pilots, and fire crew are familiar with all SOPs whether they are directly relevant to their job or not, so everyone knows what everyone else is doing. Each month a longitudinal audit is conducted at the helipad and all who work for the service is expected to attend. An incident to which the helicopter has been tasked within the last month is selected and scrutinised. A fireman, pilot, paramedic, and doctor who were involved with that particular incident explain the rationale behind decisions made and actions taken, which should comply with the SOPs and pre-determined audit standards. The SOPs of specific relevance to the pilots include those referring to landing sites, documentation, and timings. For example, the pilot must be able to demonstrate that the selected landing site was of adequate size, with no significant obstacles on approach to, or surrounding the site; and of minimal risk to people or property. Areas reviewed with regard to documentation are completion of the tech log and mission sheets which record the incident location, sector

information (including take off and landing times, fuel consumption), and details of the local weather. Audited timings include activation-



**The helicopter turns out in anyweather that has accidents**

to-take off times, which the audit standard dictates should be within 4 minutes, average speed en route to the incident, and the all up weight of the aircraft at take off. The Explorer can operate to a maximum all up weight of 6350kg but it is HEMS London policy never to exceed 6100kg, ensuring they are always within the safety limits.

### **Resuscitation Room to the Roadside**

Each day the pilots alternate between acting as Captain and Co-pilot. When HEMS is activated, klaxons sound on the helipad signalling the



**HEMS MD902 on the London Hospital roof top heli-pad**

incoming mission, and the Captain will immediately start up. The co-pilot obtains details of the incident from the paramedic in Central

Ambulance Control tasking the helicopter. Relevant information includes the location, which is given as a map reference, any available clinical information regarding the number of patients and types of injury, the origin time at which the 999 call was made and, the time at which the helicopter was activated. The medical team board the aircraft once the Captain has given permission and, when the Co-pilot has joined the crew, the aircraft leaves the helipad. HEMS London is permitted to route directly to the accident scene unless instructed otherwise by Thames Radar, who is notified of the incident location before take off. Radio contact is maintained with all appropriate stations throughout flight.

The landing site is selected once the incident has been located. After landing, the Captain clears the medical team to remove their harnesses, gather the kit, and disembark when he is happy it is safe to do so. The team remain beside the body of the aircraft until the co-pilot signals them to move away from the helicopter and proceed to the incident.

The pilots usually remain on scene whilst the doctor and paramedic attend to the patient. If it is necessary for them to go and refuel, they return to the scene as soon as practicably possible. The medical team decide whether the patient needs to be moved by air or ground ambulance. If a 'carry back' is considered to be the best course of action the patient is loaded onto the stretcher in the aircraft. The base of the stretcher is able to pivot allowing it to be manoeuvred so the head end projects through the side door and the patient can be lifted on to it. A ventilator is installed in the helicopter to maintain

respiration in anaesthetised patients, as well as equipment to monitor the vital signs such as blood pressure and heart rate. The inside of the helicopter has one forward facing seat next to the stretcher, and two rearward facing seats. The feet of a supine patient on the stretcher extend towards the tail of the aircraft. This configuration enables the doctor to sit alongside the patient, and the paramedic to sit at the head. The third seat is used for the 'observer', often a doctor or paramedic in training.

### Patient Care

The HEMS doctor is able to triage the patient to the nearest hospital with the appropriate facilities required for the ongoing treatment of the patient's injuries. This benefits the patient as they receive the specialist care they require in a shorter period of time. The Royal London Hospital is a multidisciplinary centre and is able to provide all specialties that may be required in the care of a trauma patient. A patient who is flown back to the Royal London



HEMS is one of the leading trauma services in the World is taken down from the helipad via a lift with the HEMS doctor and paramedic both in attendance and taken to the resuscitation room where they are received by the awaiting trauma team. The HEMS doctor informs the team of all the relevant information including mechanism of injury, fluids and drugs administered, injuries from top to toe, and any problems encountered on scene or in transfer. After initial stabilisation, subsequent care of a trauma patient can take weeks and months.

### Conclusion

Trauma can be a devastating event and is a significant cause of death in this country and worldwide. Research has shown that providing critical medical intervention at the earliest possible opportunity greatly improves the patient's chances of survival. The London Air Ambulance enables doctors and paramedics to be with the patient within minutes, and thus perform lifesaving procedures. It is recognised worldwide as being a leading instrument in trauma care.

# POOLEY'S

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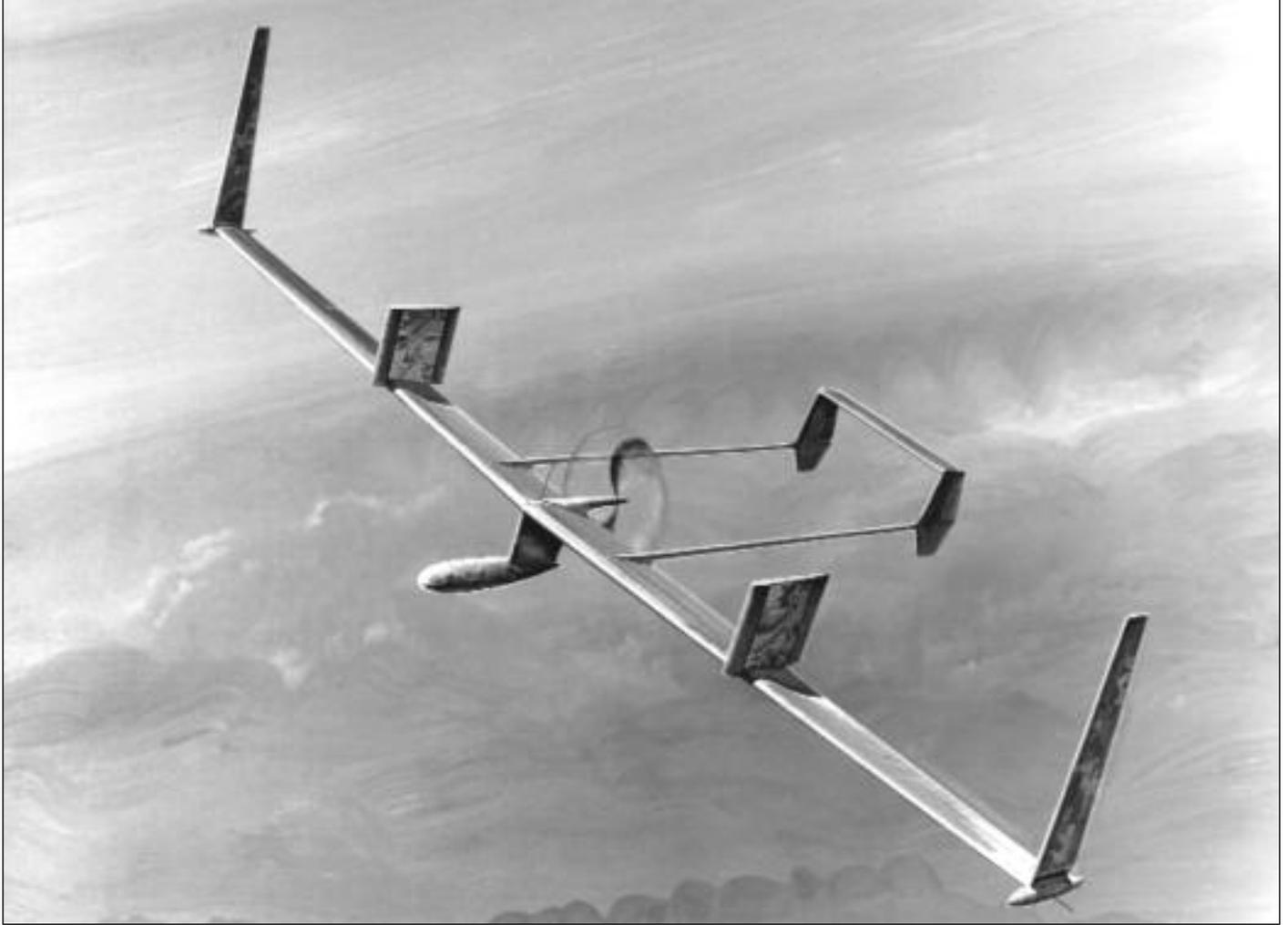
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# Oil on Troubled Waters

## The use of alternative types of fuel in

BY PROF. TONY MARMONT

As fuel stocks run down and costs increase, more thought is being put into finding suitable and workable alternatives to oil based propellants, nowhere more so than in the aviation industry, which has been experimenting with alternative fuels since the 1930s. The present situation with regard to alternative fuels is that the following partners produced a report on the feasibility of producing a carbon neutral aviation fuel, which was completed in October 2003: British Airways, Rolls Royce,

QinetiQ (the former research arm of the MOD), Imperial College, the DTI, and Tony Marmont's Beacon Energy. There was also a simultaneous report produced in Sweden with a very similar result.

In the study six potential renewable fuel options were identified and reviewed for jet aircraft: biodiesel; methanol; ethanol; Fischer-Tropsch kerosene; Hydrogen and bio-methane. The study also looked at the viability of nuclear aircraft.

The first three, although they had several advantages, were rejected for

the following reasons: biodiesel when blended with kerosene compromises kerosene's ability to perform in the very cold altitudes that are encountered at high altitude. This occurs because when biodiesel blends with kerosene it raises the fuel's cloud point (CP) which presents the danger of blocked fuel filters, plugs and fuel lines. This is particularly severe at cold altitudes.

Methanol is not suitable for use as a jet fuel because its energy density and specific density are too low, which means the fuel does not con-

COURTESY OF PHILIP JARRETT

tain sufficient energy for a jet fuel. The practical implications of these two factors are that aircraft range would be too short, and even if air-frames were redesigned with significantly larger fuel capacity, their take-off weight would be too high. Methanol also presents a health risk if it comes in contact with the skin or by ingestion. Methanol also has a flash point of 18 degrees centigrade, which is well below the minimum requirement of 38 degrees c for JP-8 and would clearly present major safety dangers.

Ethanol's density and specific energy are too low and would limit range and maximum payload. At low power settings ethanol jet engines would emit acetaldehyde, this again bringing localised health problems around airports, and, with the flash point of 12 degrees centigrade which is even lower than Methanol, would present major safety dangers.

This then left the study with three potential fuels: nuclear, Fischer-Tropsch kerosene and hydrogen.

### Nuclear

The idea of nuclear powered aircraft was first proposed by Enrico Fermi in 1942 in the Manhattan Project. The belief was that a nuclear aircraft would have almost unlimited range and would be capable of much greater speeds than technologies of the day. In 1946 the United States Airforce had a programme to develop long-range nuclear bombers and high performance aircraft. However, there were two main problems with designs for nuclear aircraft; weight and safety. In one early design the propulsion system would have reportedly weighed more than 80 tonnes, of which 5 tonnes was the reactor and almost 50 tonnes was shielding. In 1961 President Kennedy cancelled the ANP programme, after more than \$1 billion and 15 years of work had failed to produce a working test aircraft. Since the attack on the World Trade Center on 11th September, 2001, heightened international concern about terrorism appears to have ruled out the possibility of any form of nuclear powered aircraft for the foreseeable future.

### Fischer-Tropsch Kerosene

Kerosene can be produced synthetically by Fischer-Tropsch or other fuel production processes from a wide variety of carboniferous feedstocks including biomass. It was first used commercially by Germany in the 1930s to produce Fischer-Tropsch vehicles fuelled by coal. Most

of the current research has been carried out by the South African company SASOL, whose interest stems from South Africa's large coal reserves. The advantage is that being derived from biomass feedstocks it would bring carbon dioxide benefits compared to mineral kerosene, and, furthermore, largely eliminate sulphur dioxide emissions since the fuel is virtually sulphur free. Moreover, it is broadly compatible with current fuel storage and handling facilities and with current jet engines. However, the disadvantages are that F-T kerosene has a low aromatic content and being sulphur free has poor lubricating qualities. This could be solved by using additives.

There needs to be more study on the mixing of fuels with F-T kerosene. F-T kerosene also has a slightly lower energy density than mineral kerosene as it is iso-paraffinic, this would reduce the range possible in aircraft using the fuel, but it is relatively small and would be partially offset by the increase in aircraft efficiency that would occur in the short to medium term.



**Tupolev Tu-155 experiment, one engine running on LNG**

There needs to be more study on the mixing of fuels with F-T kerosene. F-T kerosene also has a slightly lower energy density than mineral kerosene as it is iso-paraffinic, this would reduce the range possible in aircraft using the fuel, but it is relatively small and would be partially offset by the increase in aircraft efficiency that would occur in the short to medium term.

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### **Hydrogen**

The use of liquefied hydrogen as a jet fuel offers potential environmental benefits if the hydrogen is derived either from the gasification of biomass or by electrolysis of water. Hydrogen, however, presents significant technical challenges and would require fundamental changes to the airframe design as well as development and modification of jet engines.

The first aircraft to fly with hydrogen was a USAF B57, which in 1956 flew with one of its engines running on liquid hydrogen. In the 1970s and 80s further research was undertaken including using a Tupolev 154 and in the 1990s a joint Russian-German project studied many aspects of using hydrogen as jet aircraft fuel.

The only primary product of combustion from the burning of hydrogen is water and the only secondary emissions of significance are oxides of nitrogen. This is an advantage as although at high altitudes water vapour is a powerful greenhouse gas it has a much lowered residence time (time in the air) than carbon dioxide, and hence is a benefit by default; water vapour being better than CO<sub>2</sub> as it has a less residence time, but carbon neutral fuel also emitting CO<sub>2</sub>, which would be recovered by the growing biomass plants.

Liquid hydrogen's higher energy density gives hydrogen aircraft a significant weight advantage over kerosene. Some of this advantage is lost to the weight of the larger tanks and additional fuel delivery equipment than hydrogen aircraft require, such as pressure relief valves and

heat exchangers, but nonetheless hydrogen aircraft are expected to have higher maximum payloads than their kerosene equivalents.

Concerns were expressed about the safety of hydrogen owing to its flammability, but this is not so problematic in open air as compared to enclosed areas, and certainly new aircraft designs and fuel handling equipment would have to take such characteristics into account.

### **Liquefied Bio-Methane**

This is also known as liquefied natural gas (LNG). Russia and former Soviet Union states are particularly interested in this development as they have much larger natural reserves of natural gas than oil. In the Tupolev 154, with one engine modified to run on cryogenic fuel (as done with hydrogen) most of the Tupolev's test flights were done with LNG rather than hydrogen. Aircraft can be operated on LNG so it is possible that they can be operated on bio-methane produced from a renewable source.

Most of the technical considerations and design requirements for hydrogen aircraft also apply to LNG, although unlike hydrogen LNG does not cause material embrittlement and methane's boiling point of -161.3 degrees centigrade is considerably higher than liquid hydrogen's boiling point of -252.7 degrees centigrade.

LNG aircraft's carbon dioxide emissions are approximately 25% lower than kerosene aircraft's, although with bio-methane the fuel cycle carbon dioxide benefits could be much greater. However, throughout the fuel cycle



**DREAM OF FUTURE - A Lockheed-California Company artist's conception of a 1990s liquid methane-fueled aircraft**

there will inevitably be some emissions of methane, which is itself a powerful greenhouse gas.

It is unlikely that bio-methane could be supplied in sufficient quantities, at a low enough price, and with a sufficiently high and reliable degree of homogeneity to make it a practical option for aviation.

### Conclusion

We decided that of all the options available the best technology was another Jet A1, or Avgas, but one which was green, which would be interchangeable with the existing fuel, and would require no changes in the distribution system or the aircraft or their gas turbines or engines.

Production would be made in the same way as existing fossil fuel oil is made, by nature from vegetable and animal matter and heat, temperature and time. Local collection centres would be needed, to process biomass and land fill waste in a gasification process with no emissions, and then turning the resulting synthetic gas (hydrogen and carbon monoxide) into crude oil by the Fischer-Tropsch process, this oil in turn would be processed by the existing fractional distillation oil refineries into Jet A1, and other fuels like petroleum, and diesel.

There are two drivers for this method of fuel production; one is the environmental damage by climate change, caused by the CO2 emissions and the other is the impending shortage of crude oil. The Association for the Study of Peak Oil (ASPO) predicts a shortage of supply over demand commencing in 2006. The World's sales yearly

increase has gone up by a little over 3 percent, whereas it was one and a half, China has increased demand by 80 percent p.a. for two years now. So even though discoveries of new oil have decreased dramatically since the 1950's, usage has correspondingly increased. So there is not only a pollution problem with fossil fuel but also an impending shortage.

It requires a step change to switch away from the existing methods to one which is better financially and environmentally and given the UK governments target of a 20% reduction in CO2 emissions by 2010, then it is obvious that fossil fuel will be further taxed to discourage use, and any carbon free or carbon neutral fuel will be tax exempt, or even encouraged by some fiscal benefits.

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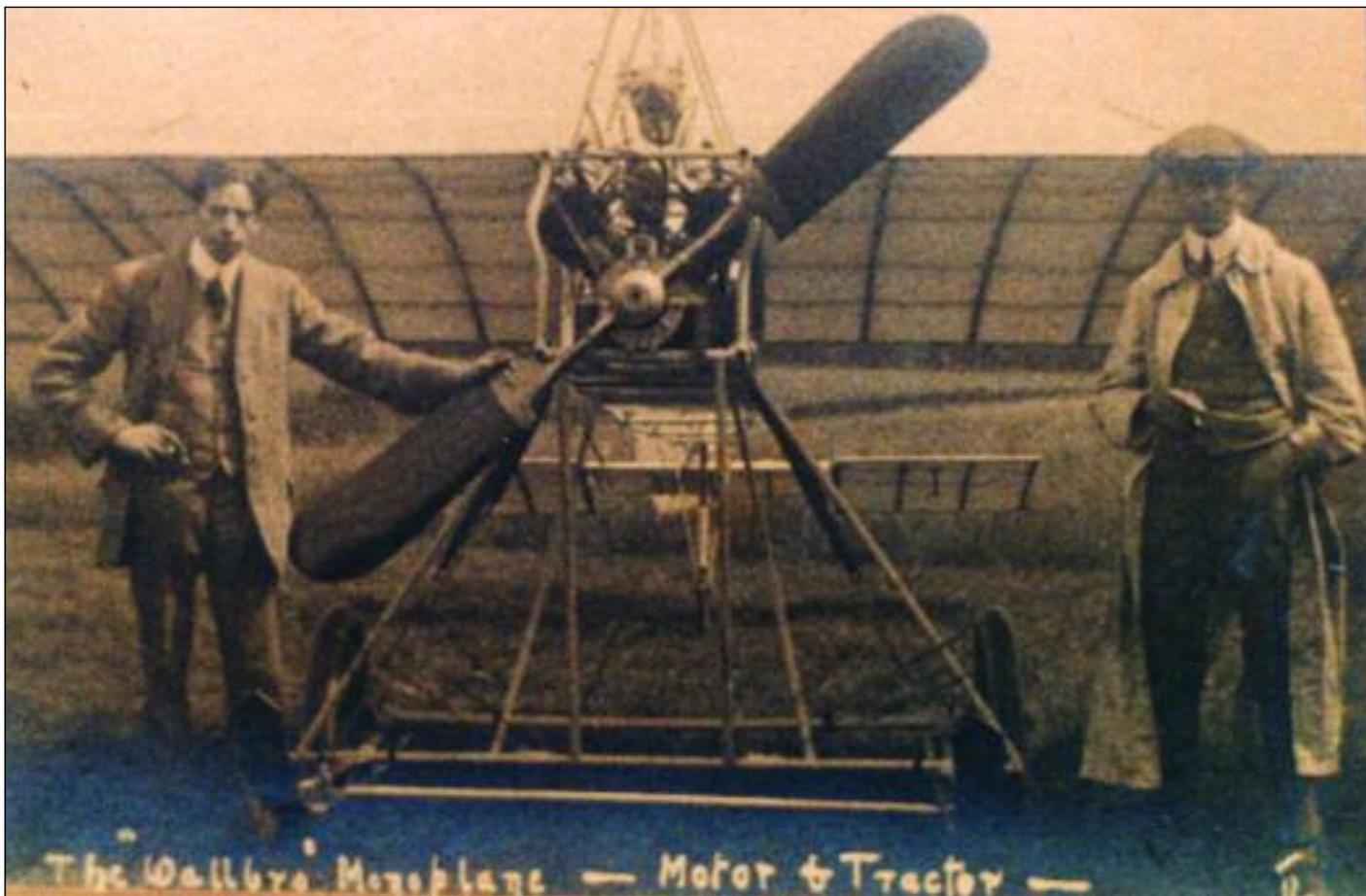
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# The Wallbro Monoplane

Flying a replica of the first steel  
aeroplane

BY WING COMMANDER KEN WALLIS

In 1973, over a rather liquid lunch, my late cousin Geoffrey, son of Percival Wallis, and I, decided it was time to make a flying replica of our fathers' Wallbro. There were no drawings or written information, only lots of old photographic plates depicting it. Enlarged prints were made from them and, knowing my father's heights, I decided the steel tube used was 1" diameter. From that other dimensions, such as the placing of wing ribs, could be ascertained.

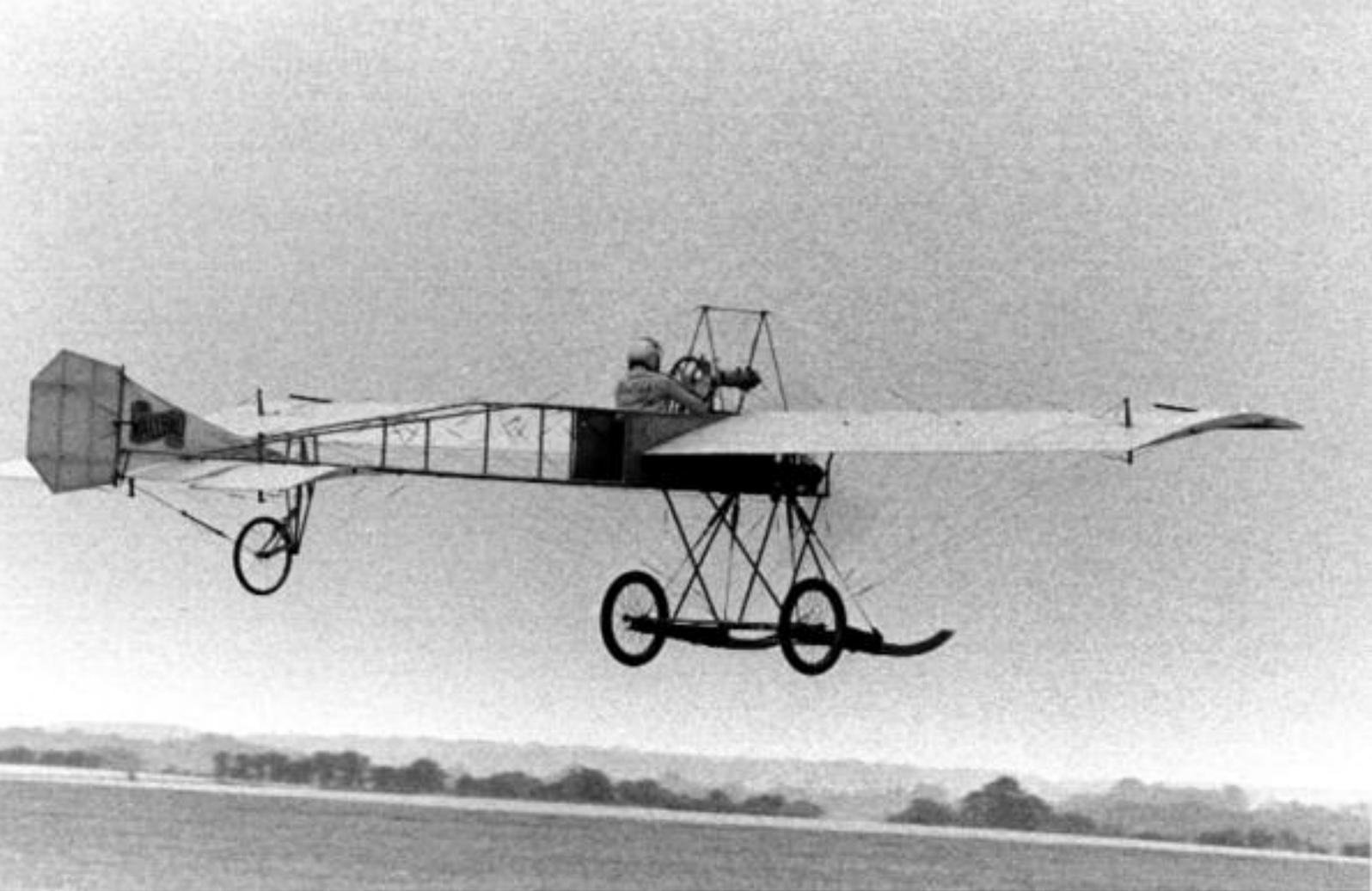
Accles and Pollock agreed to sup-

ply the steel tube for what they discovered was actually the first plane so made, at a 'policy price'. I then received a phone call, saying I wanted 1" diameter tube but I had not said the thickness, the gauge. I said, "with modern steel tube let's keep it light, 20 gauge." It was so supplied and in 1976 the fuselage was complete.

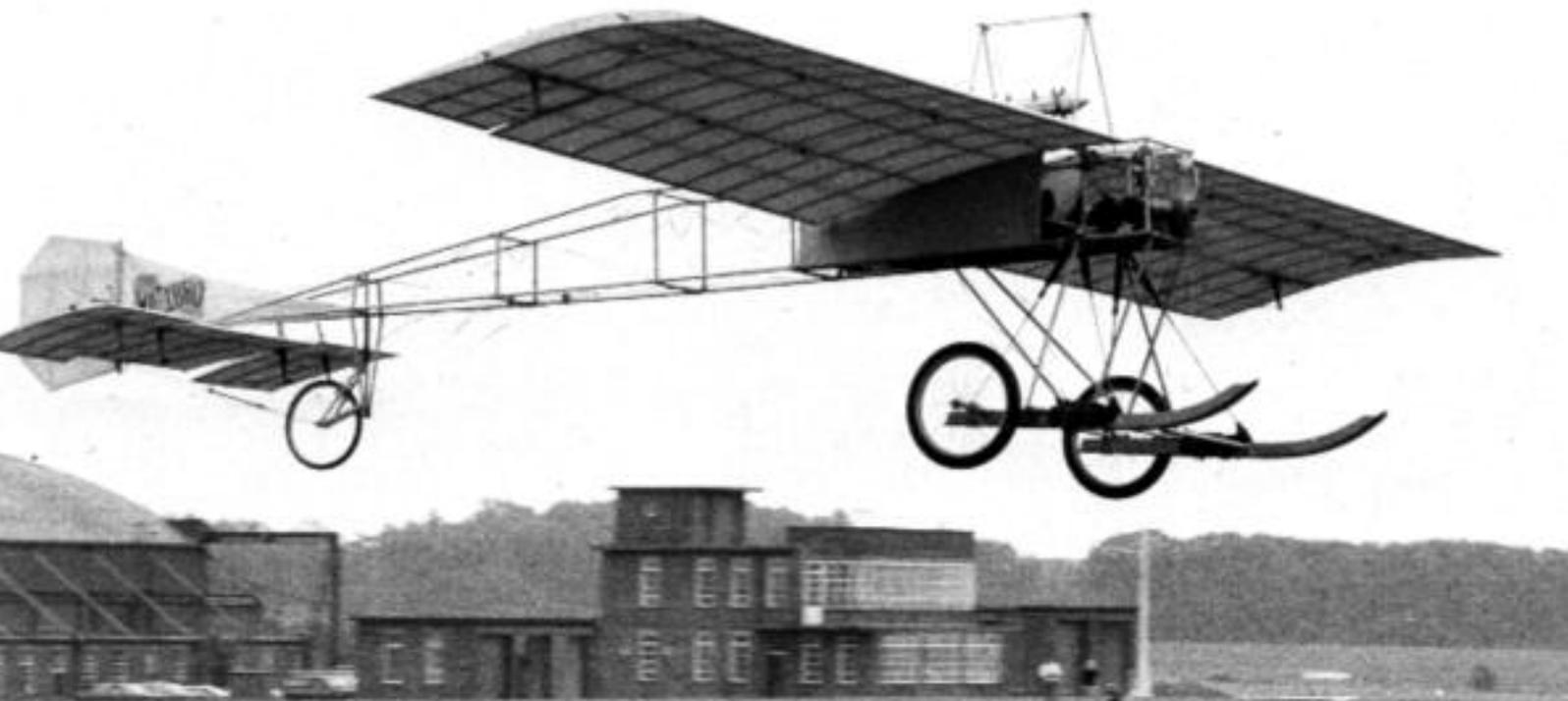
I then had a phone call from a woman saying she was my cousin Rosemary, and that we had never met. I realised that she was the daughter of the youngest of the Wallis brothers and he had not been

involved in the Wallbro. Rosemary said that she had seen that I was to fly Little Nellie at the Royal Devon Show at Exeter at the week-end and as she lived down there we must meet during my visit.

We duly met and she gave me a poster announcing to the public that the Wallbro could be seen on the 16th and 17th May, 1910. Her father, as a young man, had saved it. Rosemary then said that in WW-1 her father was an engineer in the Royal Flying Corps. She had lots of manuals on old aero engines: would I like them?



**Ken Wallis flying the replica of  
the 1910 Wallbro monoplane at  
RAF Swanton Morley in 1978**





The Wallbro Monoplane, May 1910, with Horrace S. Wallis, who had built it with his brother Percival V. Wallis. The Wallbro Monoplane was the first aeroplane to use steel tubing for the entire structure, including the wings

The "Wallbro" Monoplane —

VIII

Needless to say, I was pleased to accept them.

One evening, with a few minutes to spare, I took a look at a Gnome and Rhone engine manual. Out fell an incredibly detailed news cutting from the Cambridge Daily News for Thursday May 12, 1910. It said the Wallbro was made of one-inch 20 gauge steel tubing! I had not then made the wings, but had estimated the span. The Cambridge Daily News

article gave the true answer to half an inch. That was some 5 inches different from my estimate, but the wings had yet to be made.

So, it was thanks to Little Nellie, the return of the 'Family Vice' all those years later, proved my guess of the steel tube wall thickness was exactly right and ensured that the wing-span was also exact. From that moment on I felt certain that the flying replica of the 1910 Wallbro was

destined to succeed.

I finally assembled it at RAF Swanton Morley, and I was pleased to enjoy flying it there. It flew very well and was undoubtedly very advanced for its day. However, I did have the advantage of knowing how to fly already!

The Wallbro replica now resides at the Norfolk and Suffolk Aviation Museum, Flixton, near Bungay, Suffolk in the United Kingdom.

COURTESY OF KEN WALLIS



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# D jeuner sur l Airbe

## GAPAN at Shoreham airshow, their hospitality and the Great Twelve mysteries explained

BY GEORGINA HUNTER - JNES

**G**APAN, the Guild of Air Pilots and Navigators, gave a celebration lunch at Shoreham Airshow this summer. While livery members and guests feasted in the tent they were entertained by a performance of Chinook, Butterly Stearmen, Battle of Britain fly-past, Dennis Kenyon in his Schweizer 300 and many others. For many at Shoreham, however, the mysteries of GAPAN and the other livery companies remain exactly that. Why did livery companies begin, some may have mused, between watching a Spitfire roll or a Sopwith

shoot down the Red Baron. What exactly is a guild?

The livery companies had their origins before 1066, with guilds (or mysteries, from the Latin ‘misterium’, meaning professional skill) flourishing throughout Europe in the Middle Ages.

The word ‘guild’ derives from the Saxon word for payment, since membership of these fraternities is paid for. The word ‘livery’ refers to uniform clothing as means of identification. The development of guilds in Britain was not confined to London, and included the Cutlers of

Hallamshire in Sheffield, the Merchant Venturers of Bristol and the Fellmongers of Richmond in Yorkshire, but these were not Livery Companies, a term which is restricted to the City of London and of which there are now 107.

Many of our daily expressions come from the livery companies. Being ‘at sixes and sevens’ for example refers to the jostling for position by the Merchant Taylors and Skinner’s Companies, both of which insisted that they held the sixth position, until this was finally resolved in 1484 by Lord Mayor Billesdon (who



was a Haberdasher), who allowed them to be in the sixth position in alternate years.

Other companies also jealously guarded their rank and after many years of fierce dispute, an order of precedence for livery companies was finally settled in 1515, starting with Mercers at number one and reaching down the numbers of the 'Great Twelve' to the Clothworkers.

Early companies were the mediaeval equivalent of trading standards departments, checking quality of goods and weights and measures. They also controlled imports, set wages and working conditions and trained apprentices.

In more recent times modern professions have joined the livery, including GAPAN which was found-



GAPAN guests watching the display

ed in 1929. Before the Guild was established the future status of air pilots and air navigators was very much in doubt and the small group of commercial pilots who formed the Guild were virtually responsible for ensuring that their successors enjoyed a professional status.

GAPAN was modelled on the old City Guilds and Livery Companies, its constitution and by-laws being founded on those of the Honorary Company of Master Mariners, so it was not surprising when it became a Livery Company of the City of London in 1956, the 81st Company in 800 years to receive the honour. Ironically GAPAN is almost the oldest of the modern or 'working' Livery Companies, which represent current professions.

## Great Twelve Livery Companies



1. **Mercers**



2. **Grocers**



3. **Drapers**



4. **Fishmongers**



5. **Goldsmiths**



6/7 **Merchant Taylors**



7/6 **Skinners**



8. **Haberdashers**



9. **Salters**



10. **Ironmongers**



11. **Vintners**



12. **Clothworkers**

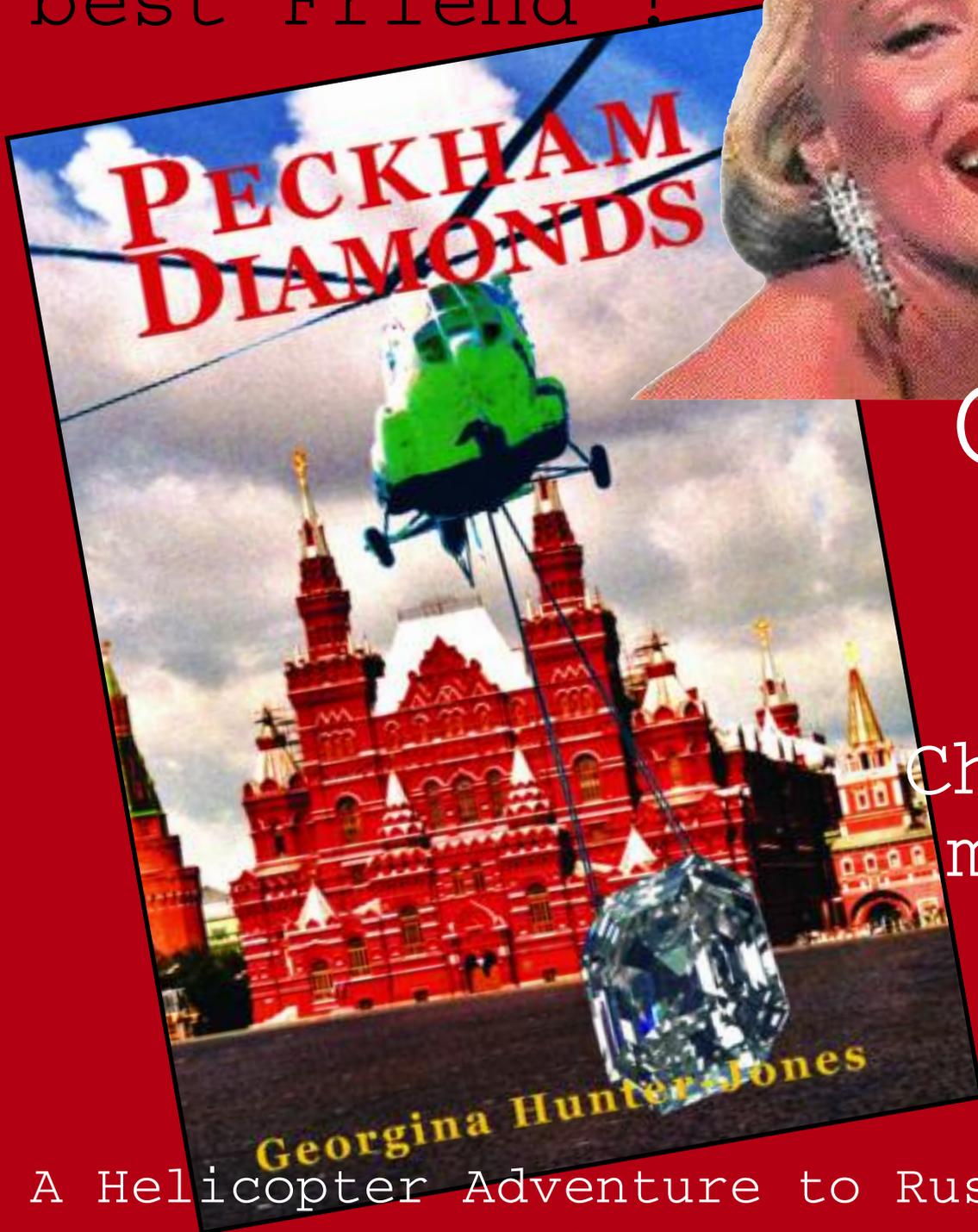


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# My brilliant Career

After 53 years Dennis Kenyon puts down  
his skids

BY GEORGINA HUNTER - JONES

**D**ennis Kenyon has retired, and for anyone who has learnt to fly in the last twenty years that means that someone who was always the inspiring light of aviation will not be there anymore. However, before anyone decides to give up flying as a response to such a tragedy, this might not be the final curtain call: Dennis has in fact retired several times before, but, somehow, something always called him back to the fold.

Dennis learnt to fly in 1952, in the RAF, on Tiger Moths. He then flew a

variety of RAF aircraft including the Vampire, the Cheetah and the Oxford (which was designed by Neville Shute, the writer, and produced by his company during the Second World War).

In 1972 he left the RAF and became part of Spooner Aviation. Strangely, for one whose name has come to be synonymous with helicopters he did not learn to fly them until 1973. He says, "I was in sales, which were quite different in those days. In 1972 I was working for Spooner at Fairoaks selling Enstroms

and a client wanted to fly the helicopter before he bought it. I flew him to Frankfurt, Germany in a Cessna 310 so he could have a 'check-out' on the Enstrom. On the way back he said he would buy one. Just like that."

Dennis decided it would help his sales if he could also fly helicopters and asked Bill Bailey, a notable of the time, to teach him to fly. Naturally, he learnt in record time.

Of his helicopter aerobatics he says: "I'd always done aerobatics on fixed wing in the services. Then I went to the Enstrom factory in 1973

which had just opened a new factory in Menominee in Michigan. We met F. Lee Bailey an American Defence Attorney Spooner was impressed and said, 'I'll have 24 Enstroms,' in order to start Spooner Aviation."

As they walked around the plant Dennis recalls: "We saw Mike Meger doing this incredible demonstration in the Enstrom (which no one was doing in those days). I was stunned by it and decided to copy it and I've been doing the same display ever since. Every time I gave the display someone bought an Enstrom. It was phenomenal."

Dennis says they invited Mike to Farnborough (which was held every year in those days) for a couple of years and the crowd around the Enstrom stand was 20 people deep with people wanting to try and buy. Only when Mike was too busy to attend the show did Dennis take over the routine. It was so successful that he then began asking other shows if they would like to do an exchange; a helicopter show for a stall. The shows agreed and the legend of Dennis and his displays began. It was not until the 1980s that Dennis discovered people would actually pay him for displays. He has now done 405 displays, and even while he contemplates his retirement he says he might just do a "few more shows..."

One of Dennis's early adverts for the helicopter was a picture of an Enstrom flying above the congested traffic with the slogan: "Aren't you above all that?" He sold 12 Enstroms in his first twelve months of sales. The delighted Spooner went straight back to the factory and bought another 24 helicopters.

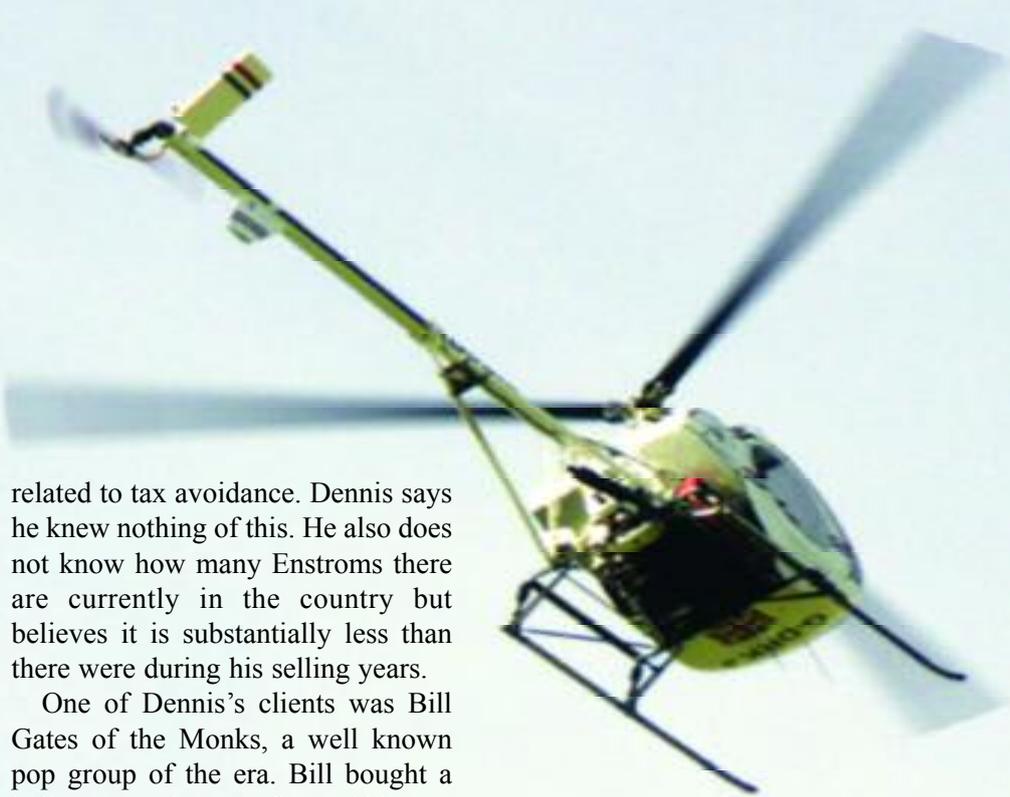
Overall Dennis sold 138 Enstroms in 10 years, which at that time was incredible. Interestingly there was a suggestion from John Martin, a friend of Dennis's and an actuary, that since the years 1973 to 1983 had high income tax penalties, the large purchase of helicopters might be

related to tax avoidance. Dennis says he knew nothing of this. He also does not know how many Enstroms there are currently in the country but believes it is substantially less than there were during his selling years.

One of Dennis's clients was Bill Gates of the Monks, a well known pop group of the era. Bill bought a helicopter to learn to fly on (this was a common procedure at the time) but after a few weeks he called Dennis to take the helicopter back. "I don't have time to learn to fly it," he complained, "and it won't stay still long enough for me to hover."

Dennis said he would give him seven days free flying and see if he still wanted to return the helicopter. After seven days Bill called him, "Dennis, about this helicopter." "Yes?" "Do you have a faster version." Bill kept the helicopter.

Spooner Aviation became the Bell Helicopter agents in 1975, and they bought a Jet Ranger as a demonstration model. At this time they discovered another tax dodge of which they had not been aware: "We used to bring in a machine and pay 15% duty on the purchase through customs and excise. However, I discovered that you only had to pay 15% under common tariff if there was a competitive product, which in this case was a company called Silvercraft in Italy. I queried the customs office about this since the company had not made a helicopter for years, but they would not budge on it, saying it was always possible there could be another competitor. However, I then discovered



that if we were simply importing helicopter parts it would only be a 5% tariff as long as there was no complete helicopter in a box. So, we started bringing in parts together in one box, thus two tails in one box, two cabins in another, two heads in a third and the rest in another box. We substantially reduced the tax and increase our profit and that of our customers."

In 1976 Dennis flew in the film *Rollerball* with John Crewdson, who, he says, "more or less invented stunt and normal flying in films." He was also involved in other film work including *Blackhawk Down* in 2003 with Marc Wolff and the James Bond film *Goldeneye* in the late 90s. "However," Dennis recalls, "when they saw I wore glasses, which the star I was stunting for did not, they wouldn't let me do the work, so they called in Mike Hammond, but then discovered he wore glasses too, so they sent him off to get contact lenses. He did the flying, but in the end the production company did not use the scene anyway. All that expense and they cut it all out!"

In 1984 Dennis started *Skyline* in High Wycombe. He says, "the only

firm I ever copied was MacAlpine.” In 1986 he sold the firm to Trevor Taylor and retired to Spain with his wife and young son Dennis. This was his first retirement, which he believed was the prelude to a life of golf and sun. However, he explains, “Enstrom licenced a guy to build the Enstrom ‘spitfire’ a turbine version of the Enstrom, and I was asked to set up the factory at Mijas. Thanks to the difficulties of local regulations the factory has still not been set up”. Dennis left Spain two years later when his wife divorced him, to get back to work and flying. (Flying he never really left having coming back to the UK occasionally to fly for Archie McKenzie and taking part in the World Helicopter Championships at Castle Ashby.)

In 1988 he started Starline Helicopters at Biggin Hill, doing charter work and sales, however, although the business initially did very well in 1989 they had a fatality in a Jet Ranger, and things started going downhill. Then Bernie Eccleston made him an offer for his hangar, and Dennis sold out and moved to Redhill where he took Hangers 1,2 and 3 and the portacabin doing training and sales. This is where Dennis (now training more on Schweizers/Hughes than Enstroms) created the ‘fiction’ of the Kinsey Hughes, which had a reputation for being rather special in the early 1990s. Beverley Hughes and her husband bought six old Hughes 269s in the US and refurbished them. The finished results were bought by Dennis and sold in the UK as: “the Kinsey Hughes, far superior to the model being sold by the Schweizer Company. They sold well, many owners even enthusiastically inventing various extra benefits that the machines had never had from the original Kinseys.”

Dennis’s students included Mark Thatcher, whom he taught to fly in a Jet Ranger, which he also sold him.

He remembers flying down the London heli-routes in the Jet Ranger with “a beautiful young Texan girl in the back. As we passed over the Houses of Parliament Mark said to the girl, ‘Mummy works there!’”

In 1995 Dennis sold Redhill Helicopter Centre to Geoff Lloyd, a former policeman from Wales, and got his golf clubs polished for his second retirement, but it didn’t happen this time either.

In 1996, Dennis returned from retirement again to sell helicopters for Wayne Chandler at Shoreham. Wayne had used, at various times, both Enstroms and Schweizers and Dennis sold both.

In 1994 Dennis had taught his son Dennis to fly. Dennis junior was a

been able to train two, co-incidentally both girls, Zoe Spain, the 2001 winner of the scholarship and Hannah Nobbs, the 2004 winner, as we do not have the money available. I keep hoping,” he explains, “that I will be able to find a big donor, who will give a large enough sum for us to invest and run the scholarship from the interest. So far no one has come up with such a sum but we keep looking and hoping.”

Hannah, Dennis’s latest protegee, saw Dennis’ display at Kemble, having driven there from Essex because she heard he was flying, and after the display heard the commentator give details about his scholarship. Once the show was over she rushed up to the tower to get further details having



**Dennis Kenyon  
and scholarship  
student  
Hannah Nobbs**

natural at flying and ‘soloed’ at thirteen years old. Dennis junior was keen to go on with flying and become a professional pilot and instructor and Dennis senior started his final flying school at Shoreham with the idea that his son and his friend Brendan would take over the business when Dennis retired for the final time. Sadly, this was not to be the outcome as both Dennis and Brendan were killed in 2000 in a helicopter accident. In his son’s honour Dennis senior started the Dennis Junior Scholarship Fund, which today has trained two youngsters to fly.

Dennis says, “so far I have only

longed to fly since she was a small girl, but having been unable to afford it. She is also doing a masters degree in Aerospace Engineering, and hoping to be able to work at Westland, as a flight test engineer.

Dennis retires, if he really does this time, with around 13,500 hours of flying behind him, at least 405 displays and innumerable types of helicopter flown and different jobs done, but he says, his favourite helicopter is the Hughes 500 because, “it is a pilot’s aircraft.” Perhaps a surprise for all those who thought he would say Enstrom or Hughes 269, his display machines.

# World Helicopt



From the sunny opening ceremony on Tuesday through to the closing dinner and awards ceremony on the Saturday night, the 12th World Helicopter Championships revelled in the characteristic French touch of its organisers, headed by Jacques Escaffre, organising President and Championship Director, together

with Thierry Basset, French Team manager. The location was Rouen, a beautiful medieval city built across the River Seine in northern France, with its airfield at Boos up on the hill above the city.

The World Championships started in 1971 with the first competition being held in Germany. Over the years competing teams and coun-

tries have varied depending on financial and social pressures, though from the start the Russians have been a serious force to contend with. This year there were forty-two teams from seven countries: Russia, UK, France, Germany, Austria, Belarus, and Switzerland, with judges and observers from as far afield as New Zealand and the USA.

# Championships

Dr Gill Jenkins, British Team Doctor and R44 & 206 pilot, reports on this year's Championships in Rouen



Between them the teams flew eight helicopter types: piston aircraft Robinson R22s, R44s and Hughes 300s, and with turbine engines the Gazelle, Bell 206, EC120, Alouette, and the Russian's ubiquitous Mi-2. However, neither speed nor power are necessarily advantageous and in the past R22's have beaten the jet helicopters in many of the events.

Agility and manoevrability, hours of planning, team work, sheer practice experience and pilot skill are more relevant factors. Most of the pilots are either helicopter owners who fly for sport or as a business tool, commercial pilots or ex-military pilots. Indeed, the Russian's reputation is, for many of their crews, built on the fact that in the past they have often

had thousands of hours of military flying experience in their Mi-2's, many flown in difficult conditions, though we are now seeing some of the new generation of Russian businessmen, such as oligarch Mikhail Kazachkov and his son Yuri competing in an R44A. This year, as before, the British team included two military crews amongst the private fly-

**French Alouette  
puts the skittle  
into the doghouse**



ers.

Tuesday morning saw the teams arriving in the sunshine at Boos in time for a general briefing before the evening's opening ceremony on the apron with the teams lined up against a backdrop of a Gazelle, Eurocopter and Mi-2, the band playing and a selection of local dignitaries and FAI members. With live coverage on French TV the teams were first introduced by their managers before Jacques Escaffre declared the championships open.

**The Precision Square**

The first competition event was the precision square on the Wednesday. In this event the helicopter is flown, with a constant heading, in a grid based on the 1 metre tram-track lines of a tennis court, testing the pilot's control of forward, sideways and backwards flight. At two of the corners a timed 360 degree turn is performed. Throughout this event the helicopter has two chains suspended beneath it. As a test of hovering skill, these chains are different lengths, the

two metre chain must remain off the ground whilst the end of the three metre chain must touch the ground. At the same time, the attachment point of the shorter chain, fixed below the pilot's seat, must remain within the tram-track. The event ends with a precision landing measured on a fixed line with an assessment of the final heading. The co-pilot's door is closed so they must judge height from experience and skill.

The results of the precision event were revealed over a delicious dinner, set in the grounds of the beautiful Chateau Anquetil and accompanied by the sound of an elegant Caribbean steel band. From the beginning the Russians were already setting the pace: First was Russian Team 73: pilot Vladimir Zyablikov and co-pilot Vladimir Gladchenko (the reigning world champions), followed by their colleagues Team 75: pilot Georgi Plakouchchi and co-pilot Nikolay Rodionov, both teams in Mi-2's. In shared third position were Team 45: Austrians Stefan Seer and Manfred Plieseis in their Robinson R22.



**Russian (Team 75)  
Georgi Plakouchtchi and  
Nikolay Rodionov start  
the Fender Rigging event**

**The Navigation exercise**

Thursday saw an early start as the navigation exercise takes the longest time to compete. Before the first team can go, the judges have to be sent out to their observation points in the countryside. In this event there are several components. The team starts at a timed departure point where they are given a small map and instructions. They first have to find several map reference points, then enter the 'search box' – a grid on the small piece of map they are given - where they search for landmarks within a time limit, before they fly to the 'bomb run' where they throw two small flour bombs at targets on the ground, finally, again timed to a limit, they arrive back at the airfield where they unravel a skittle on a rope which the co-pilot has to lower through a small hole in the roof of a 'doghouse' before landing and giving their paperwork to the judges. After this the team is supposed to be 'quarantined' to prevent them giving their fellow team members any clues. Throughout the event they have had their GPS covered and are not sup-

posed to carry any additional maps, GPS or even mobile phones. The finished teams were taken to Anquetil, the scene of the previous evening's social event, where the competitors could rest at the pool whilst waiting but unfortunately dispute was sparked by one of the French teams being photographed using their mobile phones which were supposed to have been banned. In fact, as every year, there is something between lively debate and downright angst caused by accusations of cheating or

simply bending or misinterpreting the very complex rules that have grown with the championships. These issues remained unresolved when the results for the day were announced to each team at the evening dinner in an old restaurant in the centre of Rouen.

In the lead with an almost perfect score were the French team: pilot Jean Claude Duverne and co-pilot Phillippe Arnould in their R22, followed closely by the two Vladimirs and in third were another Russian



**German (Team 11)  
Bettina Schleidt and  
Patricia Calder doing  
the Slalom in their R22**



team: pilot Viktor Korotaev and co-pilot Nikolay Burov. Hot debate resounded across the teams about what constitutes fair play.

### **The Slalom**

Friday's slalom event involves flying with the co-pilot holding a milkmaid's bucket full of water on a five metre rope round a short tight course through twelve pairs of slalom poles with entry to the gates being from different directions. At the end of the course the pilot has to 'land' the bucket on a target table. Spillage and timing are measured and count toward the total score. There are a

variety of penalties including time, gates missed or entered in incorrect order and water lost from the bucket. The great sunny weather of the championships so far broke that afternoon, with huge black storm clouds crossing the airfield, causing the show to stop for a short while.

Another excellent French dinner,

at another fine chateau – this time Villequiers to the west of Rouen, and time for a different Russian team to win an event - Team 74: pilot Viktor Degtyar and co-pilot Petr Vasilev (who were doing well in the Navigation exercise until they were timed out) here scored a near perfect 298.6 out of 300 with the Team 73





**Swiss (Team 60) Jean Daniel Berthod and Nathalie Sapin, drop the skittle into the doghouse from their R44**

Vladimirs only 1 point behind and in third a Belarus team: pilot Aleh Manko and co-pilot Svarhey Druy again only another point behind, all in Mi-2's.

### **Fender Rigging**

Saturday morning saw the final event of the main group, the 'Fender

Rigging' event. Here the co-pilot has to hang a 10kg boat fender on a rope out of his doorway and the pilot flies toward an oil drum where the co-pilot has to drop (or swing!) the fender into the drum. This has to be repeated with two more fenders on ropes of different lengths. Points are lost for time taken, number of times the fend-

er hits the ground or the drum and whether the fender actually goes into the drum. It's not as easy as it looks! For this, as for many of the events, there is a strategy of deciding that points will be lost so is it better to take your time, gaining penalties, but keep the chain on the ground/ mark the landmarks/ get the bucket through the gate/ fender in the drum/, or to avoid time penalties by racing through and missing some? There is no obvious answer and each team develops its own strategy. Many crews found that it was best to get the fender to swing forward as they slowed in front of the drum so that





**Poor weather: the rain is putting more water into the bucket of Georgi Plakouchchi and Nikolay Rodinov than is falling out**



it's momentum smoothly just 'plops' it in rather than taking their time get to the drum but then find the fender buffeted around by the downwash. Strategy again played an important role illustrating how important pre-championship practice is.

Winning their second event, with the near perfect score of 295.5, was Team 74: pilot Viktor Degtyar and co-pilot Petr Vasilev, making one feel that if they hadn't received zero for the navigation exercise they may well have won the world title. Not far

behind were the Russian team, pilot Mikhail Kazachkov and his son Yuri in their R44, and in third, the Belarus team of Alexandr Hriyshcanka and co-pilot Anatoli Dziatlau

Whilst the judges worked out the scoring the final event took place, the



**British (Team 22) Caroline Gough-Cooper and Imogen Asker doing the Precision square in their R22**





competitors and the crowd enjoying a stand alone contest of freestyle aerobatic flying, separate from the main competition, in which seven pilots displayed their skills. It's amazing to see just what can be done when these great machines are pushed to the edge of the envelope but these are no ordinary pilots and they produced no ordinary displays. It comes as no surprise to find the event won by a Russian, Gari Georkov in a Mi-2, although again dispute raged over Dennis Kenyon's excellent display in his Hughes 300, which was apparently judged to have gone outside the box limits.

The final results were announced at the championships dinner held at the magnificent Chateau Beaumesnils and prizes were awarded as follows: Individual positions: 1st Vladimir Zyablicov and Vladimir Gladchenko of Russia, retaining their World Champions title for the third year running. Second came another Russian team, Viktor Korotaev and Nikolay Burov, and third were the French team of Jean Claude Duverne and Philippe Arnould.

In the team positions, Russia unsurprisingly came first, followed by France and then Germany, based on scores of the top three teams of every country. Although Britain did have six crews in the top fifteen, they didn't have enough points from their best three crews to come in the top three countries. However, the British women's team of pilot Caroline Gough-Cooper and co-pilot Imogen Asker, did come 6th overall and retained the Women's World Champions title that they won three years ago in Austria.

Sunday saw the departure of most of the teams before a major airshow of fixed wing and rotary aircraft but they will be back in three years time, wiser and better practiced, although it will take a lot to wrest the World title from the grip of the Russians!



**British (Team 22) Caroline Gough-Cooper and Imogen Asker retain the Women's World Helicopter Title**



**UICE**  
**TARJETA DE EMBARQUE**  
**BOARDING PASS**

**INSTRUCCIONES DE SEGURIDAD**  
**SAFETY INSTRUCTIONS**

**DESPEGUE Y ATERRIZAJE - TAKE OFF & LANDING**

- Por favor, aguarden las instrucciones de la azafata o piloto antes de embarcar o bajar del helicóptero.
- Un encargado se ocupará de su equipaje.
- No Fumar.
- Ajustese el cinturón de seguridad.
- Desconecten los teléfonos móviles.

- Please, wait for instructions from the hostess or pilot before boarding or leaving the helicopter.
- Your luggage will be loaded by the handlers.
- No smoking.
- Fasten your seat belt.
- Switch off your mobile.

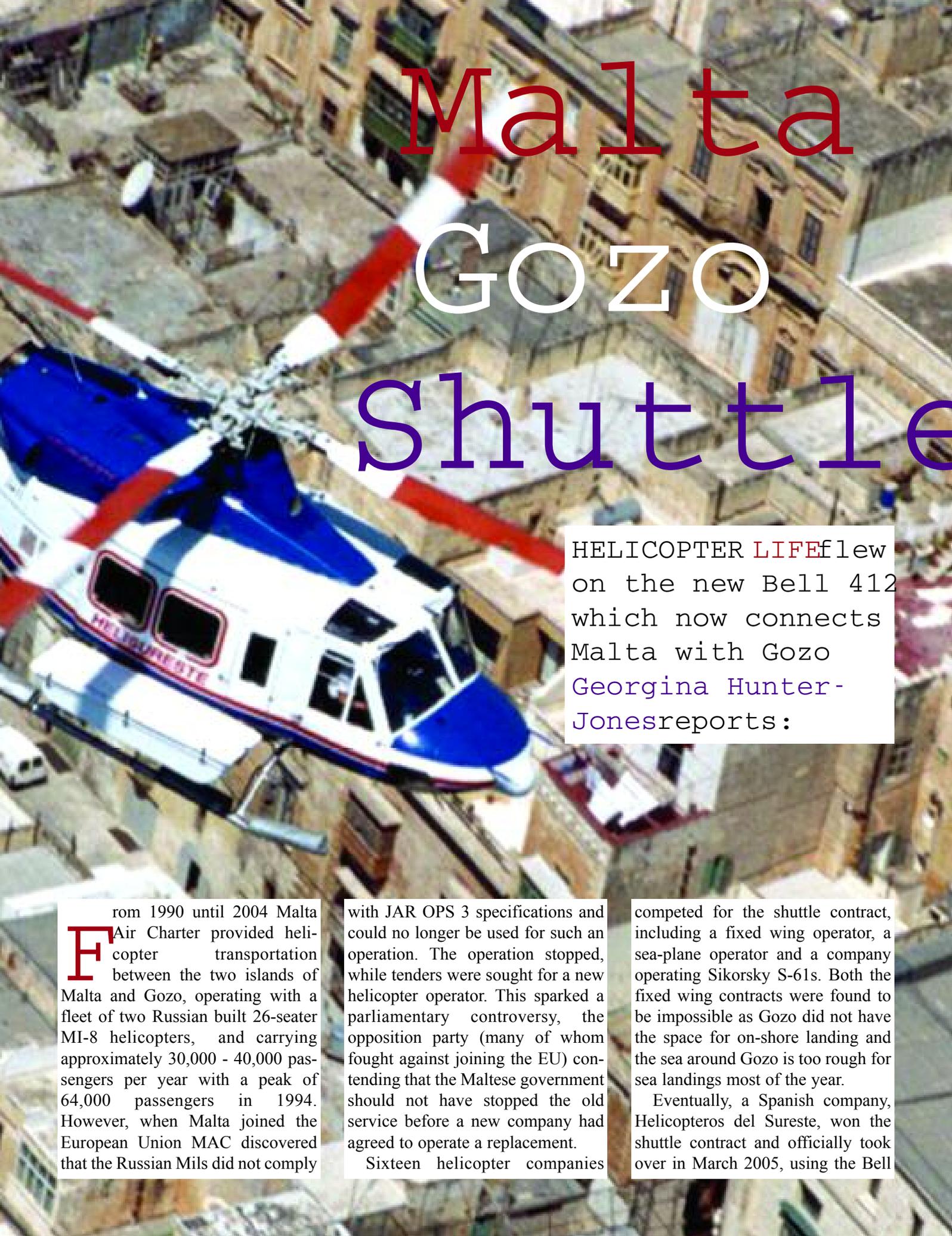
Zona de Seguridad

Zona de Peligro

**MALTA - GOZO**  
Flight: UV-910  
Date: 14/10  
Time:



Photographs courtesy of Helisureste and by Hilaire

An aerial photograph of a city with a helicopter in the foreground. The helicopter is white with blue and red stripes and is flying over the city. The text 'Malta Gozo Shuttle' is overlaid on the image in red, white, and purple colors.

# Malta Gozo Shuttle

HELICOPTER LIFE flew on the new Bell 412 which now connects Malta with Gozo  
Georgina Hunter-Jones reports:

From 1990 until 2004 Malta Air Charter provided helicopter transportation between the two islands of Malta and Gozo, operating with a fleet of two Russian built 26-seater MI-8 helicopters, and carrying approximately 30,000 - 40,000 passengers per year with a peak of 64,000 passengers in 1994. However, when Malta joined the European Union MAC discovered that the Russian Mils did not comply

with JAR OPS 3 specifications and could no longer be used for such an operation. The operation stopped, while tenders were sought for a new helicopter operator. This sparked a parliamentary controversy, the opposition party (many of whom fought against joining the EU) contending that the Maltese government should not have stopped the old service before a new company had agreed to operate a replacement.

Sixteen helicopter companies

competed for the shuttle contract, including a fixed wing operator, a sea-plane operator and a company operating Sikorsky S-61s. Both the fixed wing contracts were found to be impossible as Gozo did not have the space for on-shore landing and the sea around Gozo is too rough for sea landings most of the year.

Eventually, a Spanish company, Helicopteros del Sureste, won the shuttle contract and officially took over in March 2005, using the Bell

412 helicopter, which carries thirteen seated passengers.

However, things have not been as easy for Helisureste as they might have imagined. For a start they have only carried around 10,000 passengers this year, way down from the previous number, and this is not because of the smaller helicopters.

Duncan Johns, who has a house on Gozo, said, "I am often the only passenger on the flight, or one of three." He suggested that the price was a factor. "Since the new operator took over," he said, "the price has doubled (50 Maltese Lira return or Lm26 for

Gozo residents). The helicopters are much nicer and newer than the old rust buckets, and you get a much better view, because of the larger windows. They also take a different route, across the Grand Harbour, which is much more interesting. But the price is double, even for Gozo residents, who get the trip at half price."

Noel Grech, Helisureste's Area Manager, pointed out that tourism generally was down this year in Malta. He said, "The performance of our airline is directly linked to the performance of the tourism industry in Gozo and 2005 has been reputed

by the industry as lower compared to previous years."

Moreover the Malta-Gozo ferry boat (on which the trip costs Lm6.5 with a car and Lm2 without) only transported 899,559 passengers this year, down 3% on 2004.

Noel also defended the cost of the ticket: "You have to keep in mind that although our capacity is just thirteen, we have the same costs," he said. "Maintaining a quality service is the most important thing."

One of the problems is that the previous operator MAC was subsidised by the Maltese government,





and thus could charge less per passenger. This, however, is something the passengers themselves take into consideration. Duncan Johns suggested the subsidy should have continued for at least another year and Ray Davidson from Ocean Dreams, a diving company which explores

Gozo and Comino, positing that since tourism was down this year the Malta Tourist Board might be able to help subsidise the helicopter shuttle, at least until it started to get more tourists out to the islands. This is important in Malta where 8% of the population is employed in the tourist

industry, the second highest in Europe and second only to Cyprus.

However, Competitiveness and Communications Minister, Censu Galea, has previously explained in the Malta Times that if the government had to subsidise the ride, it would cost Lm100,000 per month,



**Helisureste Bell 412  
lands at Gozo Heliport**



Above: Gozo Heliport departure lounge, offices and a Morris Minor in the car park

Below: Boarding the Bell 412 in Gozo for the 20 minute helicopter flight to Malta



The Gozo Channel Line makes 21 return crossings between Cirkewwa on Malta and Mgarr on Gozo

which would eventually mean a cut in public services.

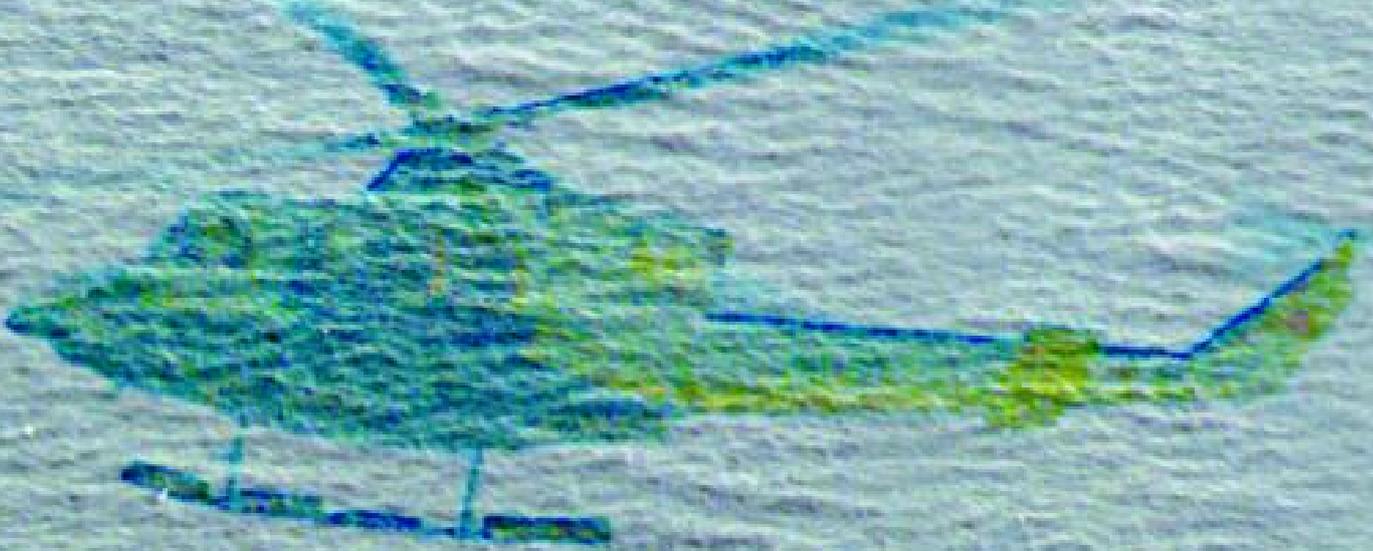
Helisureste itself sees no problem here. It is a large company with 60 helicopters, as well as fixed wing aircraft, and is in the position to underwrite their own losses at least for a while. Other work the company does includes fire fighting and support services with the Kamov in Spain and in Chile, EMS in Spain and Italy, flying on oil contracts in Libya and Tunisia, both of which are close to Malta. Noel Grech points out that they currently have a five

year contract for the shuttle and are committed to flying any passenger with a ticket. He adds, that there are some advantages of joining the EU for the helicopter passengers, one is that previously the helicopter could only fly in national waters, and thus no flights outside Malta were possible, Helisureste now has plans to fly to Sicily and North Africa in the near future. "Malta," he said, "is a strategic location and we are seriously evaluating other routes up to 250 nautical miles away - the maximum range of our helicopter - such

as to Palermo, Tunis, Jerba, Messina and Tripoli, as well as to provide support services to any oil installations within range of the Bell 412."

Moreover the Bell 412 can land on Comino, a much smaller helipad than Gozo, which the Mils were unable to do.

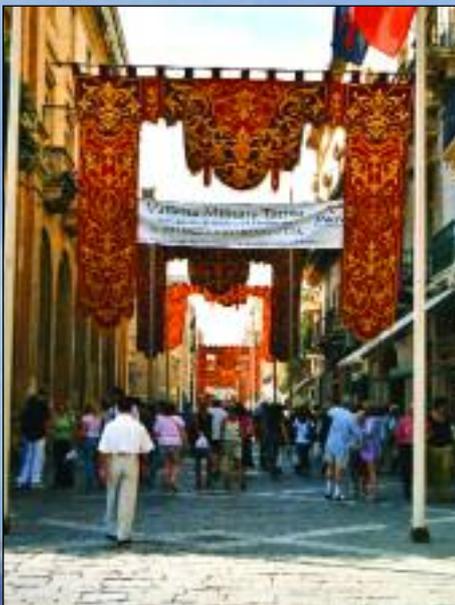
Helisureste also have plans to fly from the yacht terminal in Valletta, enabling passengers from the cruise ships (frequent visitors to Malta) to fly out to Gozo or for round-the-island panoramic flights. They are already involved in a lot of photo-



Above: Captain Carlos Loshuertos Gomez completing his pre-take off checks



Left and above: Captain Carlos Loshuertos Gomez and Co-pilot Antonio Ruiz Lacasa



Above: Valletta's main street Triq Ir-Repubblika

graphic and film work and they hope to be able to establish an EMS helicopter service in Malta, as they have done in Spain.

The helicopter flies day and night in summer, piloted by two crews from Spain, who do 15 days on and 15 days off, 18 flights a day. In the winter this is reduced to one crew and far fewer flights, as, Noel explains, the work is very seasonal.

Captain Francisco Santa Maria Arranz said that the company chose the Bell 412 for the work as it was the biggest on the Helisureste fleet with

the exception of the Kamov, which is not suitable for this kind of work. He comes back and forth from Spain for his time on duty, but his co-pilot Aser Martinez Somoza has relocated to Gozo and is learning Maltese. They both found the Bell an excellent machine to fly both VFR and in bad weather. The Bell 412 is full IFR although Gozo can only take VFR flights, this though, Noel Grech explains, is not a problem as the smaller island will often be clear even when Malta is not. He says, "Gozo's topography makes it a very



Left: Marsaxlokk harbour with *luzzus*, the traditional fishing boats dating back to the Phoenicians



Left: Horse and buggy tours in Valletta  
Right: The Pub in Valletta, Oliver Reed's last watering hole



good weather area, without fog and with a good sea breeze.”

Helisureste have a maintenance base in Gozo, but when they need to change the aircraft, which they have already done once, they fly a new one out from Alicante, a trip of seven hours but with short enough legs not to need a ferry tank. “Next year,” says Noel, “we hope to consolidate what we have done so far and at least double the number of passengers. We have great confidence that once our quality of service is known that this will happen.”



Above: Grimaldi Lines cruise ship entering the Grand Harbour  
Left: Maltese type gondola in the Grand Harbour



Left: The old British red phone boxes have been retained



Left: British Leyland bus from yesteryear  
Right: Typical wooden balconies in Valletta



**T**oday we are all travelling more often and for further distances but whether to long or short haul destinations as tourists we are all on limited time schedules. We look for something different which is why the demand for extreme locations and sports is a rapidly expanding holiday market. Making best use of your time and a chance to experience something special can make a holiday an exceptional experience.

Australia is now one of the top five holiday destinations in the world and offers the visitor a diverse continent of amazing sights, wildlife and some unique locations. It is a vast country, as a tourist you soon get a feeling for the huge distances between the places

you want to see, and even when you get to them they are often unbelievably big: Sydney Harbour covers 54 square kilometres and has 240 kms of coastline, the Barrier Reef covers 2000 kms on the east coast of Australia and the National Park of Uluru is 600 square kms. The size of the country makes it ideally suited for helicopters and has resulted in a thriving helicopter industry.

Seeing the sights from the air is not a problem as there is no shortage of companies offering a variety of tours or trips in the popular holiday destinations and it is now a relatively inexpensive way to travel. An average 30 minute flight will cost around AU\$350 Australian dollars (£150) with a knowledgeable pilot to add

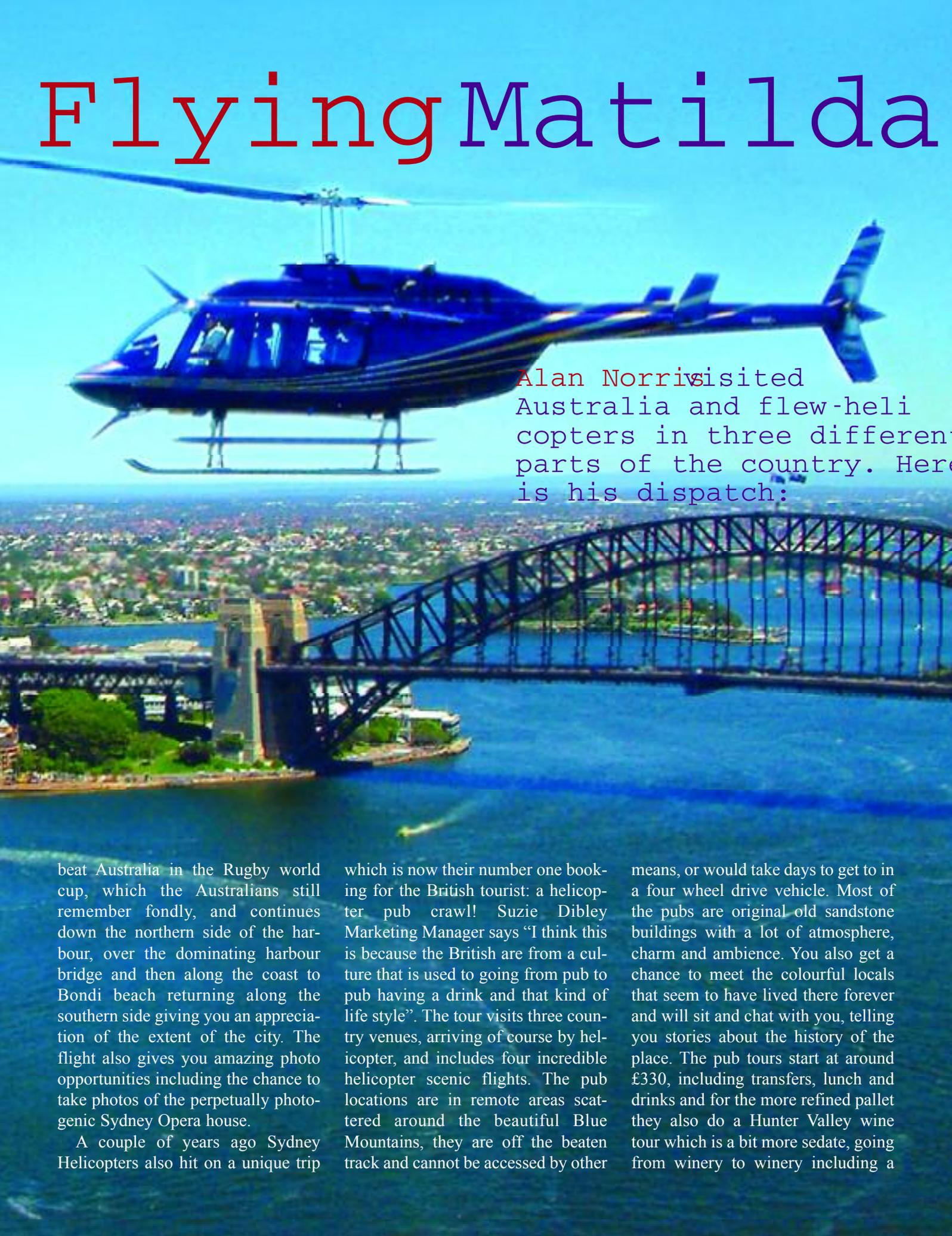
colour and information to the trip.

A large proportion of the 4.5 million tourists that visit Australia each year fly into Sydney, the most well known city along the east coast. The city and surrounding area has so many places of interest and as many different ways of seeing them including: boats, buses, bikes and guided walks. Sydney Helicopters, based in the western suburbs of Sydney, can offer spectacular scenic flights that give you views no ground tour can achieve. You may have seen the harbour from the quay and even done the bridge climb but to see the Opera House and Sydney Harbour flying at 500 feet is unique. Leaving the heliport the flight passes the 2000 Olympic stadium and where England



Photographs by Alan Norris, Ayers Rock Helicopters,  
GBR Helicopters and Sydney Helicopters

# Flying Matilda

A blue helicopter is shown in flight, hovering over a cityscape. The helicopter is the central focus, with its rotors blurred from motion. Below it, a large steel truss bridge spans across a body of water. The city below is densely packed with buildings and greenery. The sky is a clear, bright blue.

Alan Norris visited Australia and flew helicopters in three different parts of the country. Here is his dispatch:

beat Australia in the Rugby world cup, which the Australians still remember fondly, and continues down the northern side of the harbour, over the dominating harbour bridge and then along the coast to Bondi beach returning along the southern side giving you an appreciation of the extent of the city. The flight also gives you amazing photo opportunities including the chance to take photos of the perpetually photogenic Sydney Opera house.

A couple of years ago Sydney Helicopters also hit on a unique trip

which is now their number one booking for the British tourist: a helicopter pub crawl! Suzie Dibley Marketing Manager says "I think this is because the British are from a culture that is used to going from pub to pub having a drink and that kind of life style". The tour visits three country venues, arriving of course by helicopter, and includes four incredible helicopter scenic flights. The pub locations are in remote areas scattered around the beautiful Blue Mountains, they are off the beaten track and cannot be accessed by other

means, or would take days to get to in a four wheel drive vehicle. Most of the pubs are original old sandstone buildings with a lot of atmosphere, charm and ambience. You also get a chance to meet the colourful locals that seem to have lived there forever and will sit and chat with you, telling you stories about the history of the place. The pub tours start at around £330, including transfers, lunch and drinks and for the more refined pallet they also do a Hunter Valley wine tour which is a bit more sedate, going from winery to winery including a

delicious top quality lunch.

“We are now getting requests from people asking for a helicopter holiday, wanting to stop overnight in cabins in the Blue Mountains and we can offer them a really special experience. We have a number of properties on our books and the list is growing as I often get a call saying “I am opening this cottage for B&B which would be just perfect for you”, and some of them are but we always go and scrutinise the location first. Owners always say that they have plenty of room because they think a helicopter just comes in lands and takes off straight up and does not worry about the power lines and all the other obstructions that when you are on

the ground look fine” says Suzie.

The company operates from the heliport at Rosehill, which is Sydney's only commercial heliport. “When operating from Sydney Airport it means you can be subject to flight clearance and delays for take off are common, the preference to base ourselves outside controlled airspace has given our passengers more flexibility and reduced costs.” Suzie continues. “We have a full fleet of three Bell 206 Long Rangers, EC-120, R44 and Bell 206 Jet Ranger. We do everything from tourism right through to bush fire lifting. We are also taking a lot of bookings for helicopter weddings. We now have a celebrant who performs a legal wedding ceremony in

the air with the Long Ranger. You can have the bride, groom, bridesmaid, groomsman, celebrant, and friend. A lot of our bookings are coming from the UK, I guess couples are looking for something different to make the day special”.

Travelling north from Sydney, the Sunshine and Gold coast, will always guarantee fantastic beaches and places to holiday. On the tropical north Queensland coast lies Cairns. An icon location and the major starting point for anyone wishing to visit, snorkel or dive on the Great Barrier Reef or visit the World Heritage listed Rainforests region of Australia.

The Great Barrier Reef is listed for all four World Heritage Area criteria for inclusion as a zone of out-

**Bell 206 flying tourists from Cairns over the Great Barrier Reef, taking off and landing on pontoons**





standing beauty and rich biological diversity and is larger in area than the United Kingdom. The reef contains at least 1500 species of fish, over 400 types of coral and 5000 varieties of shell fish and is the number one trip for most tourists visiting Australia. Although boat trips are the most popular way of getting to the outer reef, helicopters are still an affordable alternative, and cut the journey time to 20 minutes rather than the hour and a half by sea.

One of the largest helicopter companies based at Cairns International airport is the Great Barrier Reef Helicopter Group which is made up of three companies: Quicksilver Helicopters, Sunlover Helicopters and Cairns Heli-Scenic. The companies operate a mixed fleet of helicopters and are usually assigned to different cruise companies, i.e. Quicksilver Helicopters will work with Quicksilver cruise boats. To make it easier for the passengers they have an office on Cairns Esplanade as well as a floating pontoon at the pier for direct departures to the reef.

Steve Jones, Operations Director

says: "All our ground crew at the pontoons are fully trained, and hold an Australian CAA certificate of competence. We always land the helicopters on the pontoon with the tail rotor over the water and load passengers from each side, the handlers protecting the passengers from the tail rotor. We have strict pilot rules too, if two helicopters arrive together both can land on the pontoon, but if one has landed and a second one arrives the latter has to wait while the first unloads its passengers. We have an excellent safety record and no passenger has ever fallen off the pontoon".

It's also possible to combine a trip out to the reef with a direct helicopter transfer from the marina to a pontoon on the outer reef, where you can spend 2 to 3 hours on the reef, before returning on a cruise boat. Steve continues "We have some very busy days when we provide an alternative return transfer for passengers who have travelled out by boat but cannot face the return trip. Although it can be calm and sunny in Cairns at the outer reef the sea state can be the opposite".

A three hour scheduled flight away from the east coast is number two on the most visited locations list in Australia, Ayers Rock, or Uluru its preferred aboriginal name. This is perhaps the image most travellers think of when you mention Australia and is located in the red centre, named for the colour of the sand.

Ayers Rock Resort lies at the gateway to Uluru-Kata Tjuta National Park, in the Northern Territory. The National Park has an area over 311,000 acres and Uluru is one of the largest monoliths in the world. Made of sandstone, Uluru rises 348 metres above the desert floor and has a circumference of nine kilometres. About 30 kilometres west of Uluru is Kata Tjuta, known also as The Olgas, Kata Tjuta is the Aboriginal name which means 'many heads'. It is a group of more than 30 rounded red domes rising from the desert floor. Sunset and sunrise over Uluru and Kata Tjuta are spectacular, with the colours at both sites becoming more vibrant as the light changes.

Given its remote location, a tourist resort of world class stan-

dards is possibly something you might not have expected to find in the Outback, but unless you are a local or working here this is where you will be staying. The resort at Uluru is made up of a group of 5 hotels ranging in price from luxurious 5 star £1000 per night to modern 3 star hotels at £180 per night. The complex is entirely owned by one compa-

ny, Voyages Resort. At any one time there can be 5000 hotel guests at the resort, with the average visitor only staying 1.5 days. The rock, as Uluru is referred to locally, is grand in scale by anyone's standard and can only be appreciated from the air. Martin Watts, Base Manager for Ayers Rock Helicopters, explains "the resort is open 365 days of the year and so are

we. Our busiest period is August to September for visitors from the Northern hemisphere. Ayers Rock Helicopters operate a Bell 206 Jet Ranger and a Robinson R44 from Connellan airport, named after Eddie Connellan who opened up the Northern Territory to aviation and was the first person to land at Ayers Rock in 1938 flying a Spartan



**Popular twilight flight around Ayers Rock takes off 30 minutes before sunset**

biplane. Originally the helicopters operated directly from the resort but as demand increased they moved to the airport which is just a short courtesy bus ride away from the resort.

The popular twilight flight takes off 30 minutes before sunset and climbs steadily to 3500 feet, the fixed wing tours operate at 4500 feet and both types maintain a listening watch

as ATC had closed by then. As the R44 heads towards the Olgas, another spectacular rock formation along the same latitude, you can immediately appreciate how the landscape was formed by a sea some few million years ago by the undulating ripples of the sands dunes. The dunes themselves are knitted together by spinifex a low growing grass which

creates natural grey green circles across the sand, much of this missed from ground level. As you fly around the rock formation you suddenly realise the sheer size of the Olgas from the air and turning towards Uluru as the sun just touches the horizon and the magnificent colour changes start to make the rock glow, circling twice around the rock for yet



more photos and the flight heads back to the airport. Martin says “the major part of our work is scenic flights but we also do private charter and we get a lot of professional photographers wanting to take photos of Uluru and the Olgas. We also fly geological surveys teams to locations that can take 3 or 4 days by truck only taking as many hours by helicopter and also the occasional medical or SAR task. Some of our pilots are cleared to land on Ayers Rock and we often have to lift someone off who has climbed the rock but has injured themselves and can’t get back down again, medical emergencies are the only time helicopters are allowed to land on the rock”.

They also have a second R44 operating at Kings Creek Station,

460 km further into central Australia. Martin continues, “from here even more of Australia’s spectacular Central Ranges, covering an area of 168,000 square kilometres opens out to a vast maze of crags & canyons, rock formations & waterholes, craters and many more natural features which are accessible and really appreciated from the air.” The Australian outback is as remote and hot as it sounds, 42-48 degrees dry heat with no humidity during December, aviation has been an accepted method of transport for many years so fuel is readily available, especially out in the remote farming stations, but there is a premium to be paid in that fuel is around 70p a litre for AVGAS.

“Wherever we operate from we

try and fly with a full passenger load when ever possible. It will hurt the bottom line of the business only flying 2 passengers all the time but most people travel as couples and therefore we have to be able to offer the ability to fly which is why we use the R44. It is a cut throat world here in the tourist business and flying helicopter tours is not exempt”.

As travellers we are always looking for new and exciting experiences, spectacular sights, and of course sunshine and fun. Australia ticks all those boxes and more, sight seeing by helicopter is the ideal way of making use of our time away but more importantly in Australia you get to see this vast country and appreciate its awesome scenery in a unique way.

# We'll weather



**HELICOPTER LIFE** flew the Eurocopter EC155B1  
from Cambridge Airport to the Hanbury Manor Hotel  
in Hertfordshire

Photographs by Hilaire Dubourcq

# the Weather



**T**he EC155 is an all-weather helicopter,” said Paul Lees, Managing Pilot of Lanthwaite Aviation, “so it would be really surprising if the weather was too bad to fly. I’ve had flights in Scotland where I’ve been at 8,000

feet all the way and only seen the ground on take off and landing.”

And that is one of the beauties of this well-equipped EC155B1, privately owned but chartered out through Starspeed Helicopters at Blackbush, under whose AOC Lanthwaite Aviation is run. The 155

is single pilot IFR, which might seem surprising in a medium lift, twin engine helicopter with a normal cruise speed of 155 knots (VNE is 175 knots), but has a lot to do with the four axis, full coupled autopilot. “Better,” says Paul, “than an inexperienced co-pilot.”

G-NIVA is a white helicopter with a red stripe outside and a red and gold interior. The lavishness of the decor is owing to the previous American owner, who was connected to the Boston Red Socks baseball team. At first the idea of a white helicopter is a bit strange, but G-NIVA is an attractive and very striking machine, perhaps because of its dolphin design (the 155 is a development of the AS365N Dauphin 2) which is exacerbated by the long nose created by the weather radar in the pelican rack (a

wonderful name for the shelving inside the nose).

“There are very few helicopters in Britain in this league,” says Paul, who willingly admits to eulogising about the machine, “it is one of the fastest helicopters around with VNE of 175 knots, and is better than the Sikorsky S76 for passengers because it is smoother, faster and quieter, even at top speeds. Don’t believe me,” he adds, “you will see for yourself when you fly it. Eurocopter have put a lot of extra work into reducing

vibration, they almost float the gearbox to minimise vibration before it gets to the engine, then the head is designed not to get vibration to the blades, and the fenestron, provided it is balanced properly, makes the tail zone very smooth in comparison to a conventional tail rotor.”

The 155 has a five-bladed Spheriflex main rotor, and the fenestron has ten blades asymmetrically spaced around the hub. Eurocopter claims that the helicopter is more than 3 decibels below the latest



Left: Fenestron with ten blades asymmetrically spaced around the hub

ICAO standards, and that it is the only helicopter in its class to offer a de-icing system.

As we do the walk-round Paul points out the lack of hinges in the head, another method of reducing vibration, instead the laminated spherical thrust bearing twists to allow flapping. There are a number of sight-glasses for gear box and engine oil, which are easily visible, and there are kick-in steps for those with long legs (there was also a ladder available) to climb up and examine the

head. For storage or travel the blades can be easily folded after removing a couple of pins.

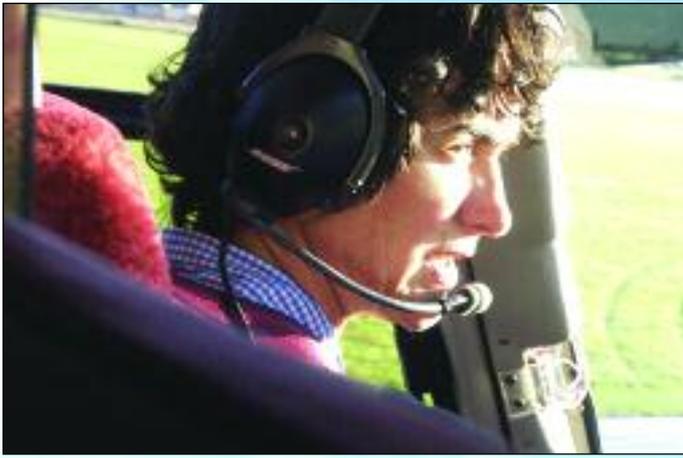
Inside the back of the machine, which is designed to carry a maximum of eight in this mode, Eurocopter has developed a 'cocoon' for extra quietness, the windows are triple glazed and the cabin is isolated from the airframe by vibration mounts, with sound-proofing installed between the cocoon and the airframe. Although this does give an extra weight of 823 lbs the two

Turbomeca Arriel 2C2 engines with 853 shp max continuous power still allow a useful load of 4,907 lbs. There are also a selection of DVDs and other forms of entertainment to keep the passengers happy and our passenger said it was quite enough to have a normal conversation.

In the cockpit with the battery on we began the internal checks. The EC155B1 has an advanced integrated digital flight control system, the MEGHAS, from Thales avionics, earlier and simpler versions of which



Right: Five-bladed Spheriflex main rotor



are on the EC120 and EC145 helicopters. The system consists of the four axis autopilot and seven computer displays, there are two (one for each side) with an artificial horizon, speed and height information, two with route information, including the Garmin, and three central displays

information can be displayed.

We start by checking the four axis, full coupled autopilot, the warning systems, the four electric fuel pumps, and all the displays, then Paul places the left engine, “we start left and right on alternate days,” in the ‘on’ position and we monitor the start, around 23% the blades start turning and it glides up to 100%. Should there be a problem the FADEC (fully automated digital engine control) will prevent the engine being damaged, it also gives warnings and tells you after the flight about any problems. With the left engine stabilised Paul turned on the DC generator and started the right engine.

All the checks done Paul turns on the seat belt sign, which has the same resonant ping as in an airliner, checks the passengers are ready to go and calls the tower.

As we taxi out, collective slightly up, moving along on the wheels, Paul gives me control, warning that the

showing the engine and system parameters and warning lights, this is also where the flight information is shown at the end of each flight. There is also a digital box below the Garmin on which the weather radar, TCAS and other

pedals need quite large inputs. This is indeed the case and we slow down to turn, noting the narrow wheel base makes it possible to turn the machine over if you turn too sharply.

After waiting for the wake turbulence to clear, as a large jet has taken off before us, we take off from Cambridge and, lifting the wheels up, fly over towards Hanbury House Hotel, the Garmin providing a route, the TCAS pointing out other traffic and terrain clearance, and the weather radar warning us of approaching cloud and, once we had entered the climb, the autopilot flying the machine. Flying controls in the EC155 give you a choice of manual, SAS (stability augmentation system) or SAS and autopilot. Having tried to fly in all three modes it was clear that



manual flying is a lot harder than flying with SAS or the combination SAS and autopilot, both of which felt a little stiff (owing to the forced trim which follows stick movement) but otherwise perfectly stable, while in manual mode you were suddenly aware of the gusting 30 knot wind!

Steep turns were smooth, as you would expect, with no extra vibration and easily executed. Paul demonstrated a steep low level torque turn, and the helicopter’s ‘automatic voice’ immediately warned the pilot



Left: Interior with a developed cocoon for extra quietness

about terrain clearance. Paul explained that any unusual movement will generate a warning, as, of course, will getting too close to the ground with wheels up.

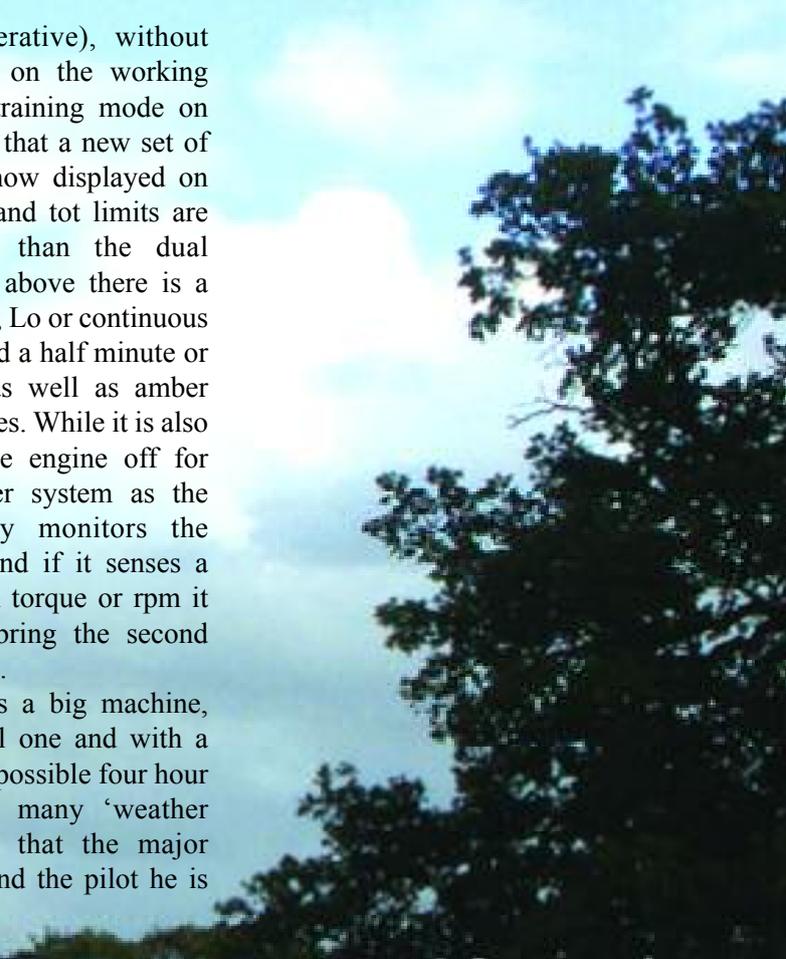
As we returned to Cambridge Paul set up the autopilot for a tear drop approach onto the ILS. With the frequencies dialled in and the full coupled autopilot set up all the pilot needs to do is monitor the DME and press the heading button to change direction on each leg, although this too can be 'plumbed in' to the system if required. The 155 will then fly itself down the ILS at the speed requested by the pilot, to a height of 65 feet, which it will continue to hold until the pilot takes control of it. Thus it will not fly itself into the ground, and, although it won't actually land itself, in theory the pilot could land in fog. In reality, of course, the company has weather minima and minimum cloud base is 300 feet.

Back on the ground at Cambridge, I did some hovering, take offs and landings, quick stops all with the autopilot and SAS systems on. The quick stops were very smooth and the 155 likes to accelerate, you can almost feel it saying yippee, let's fly. Take offs took a while to get right, perhaps because the helicopter lifts left side first and hangs slightly right wheel down, as you would expect, but they were getting much smoother with practice. On landing it took a couple of attempts to find the balance between gently edging the nose for-

ward for a smooth touch down, and finding oneself taxiing forward.

There is also, as there usually is now on twin engine helicopters, a training mode on the FADEC which allows the crew to practice manoeuvring with OEI (one engine inoperative), without putting any strain on the working engine. Selecting training mode on the FADEC means that a new set of engine limits are now displayed on the gauge, torque and tot limits are somewhat higher than the dual engine limits, and above there is a display showing Hi, Lo or continuous for 30 second, 2 and a half minute or continuous time, as well as amber and red warning lines. While it is also possible to practice engine off for real this is a safer system as the FADEC constantly monitors the operating engine and if it senses a detrimental drop in torque or rpm it will immediately bring the second engine back on line.

The EC155B1 is a big machine, but a very graceful one and with a range of 433 nm, a possible four hour endurance and so many 'weather defeating' devices that the major problem is to remind the pilot he is only human!



**Right: Cockpit showing the MEGHAS integrated digital flight control system**

# HighTec



# HeliTech



HELICOPTER LIFE visited HeliTech 2005,  
Europe's largest helicopter exhibition, at  
Duxford, Cambridge

Georgina Hunter-Jones reports:

**H**eliTech 2005 was once again held at Duxford, an earlier suggestion of it moving to London's Excel having been unpopular. As ever Duxford was an excellent site with many helicopters and planes flying in, fair weather and lots of interest from exhibitors and visitors.

The biggest splash of the event was the unveiling of the Bell 429, the IFR version of the Bell 427. The unveiling was done by Patriot

Aviation who announced at HeliTech that they had been appointed as the UK and Northern Ireland representatives of Bell Helicopters.

Also catching much interest (judging by the enormous queues) was the Aero Simulator, Bell 206 Jet Ranger. The simulator was originally designed in the USA as part of Flyit Simulators, but for use under JAA regulations it had to be completely changed. So, Belgians Piet De Backer and Wim Van Ertvelde spent

two years making it acceptable to European regulations, and it is now 'flying' and ready for purchase by schools at a price of around 150,000 Euros. While this is twice the price of the American model, it is considerably cheaper than most JAA approved simulators. Piet says: "The whole machine has been re-engineered and the only Flyit remains are the fact that it is installed in a trailer and that the visual engine is FS 2002. Other than those there is no similarity." He also adds that: "JAA Credits are FNPT II which gives dispensations towards several licences including twenty hours for an integrated ATPL(H), five for an integrated CPL(H) and more towards recurrency and night training."

The machine may be started up like a normal Jet Ranger, which, says Mike Colingy CEO of Flyit, has saved many dollars in the States on hung and hot starts, so once the student flies the real machine he is fully conversant with all the problems of start up. In Europe the JAA specifications insist that the simulator has no 'feel' (this, they say, is because hydraulics have no feel: they apparently discount the mechanical pedals) however, it does mean it

takes a while to get used to flying the simulator and that hovering is particularly difficult. Once that is mastered



and the student is aware that the machine is to be flown as an instru-



ment trainer a new world opens up. The instructor, who can sit either next to the student or behind and operate

the computer, is in a position to change anything, from the overall graphics to individual instruments.

He can also highlight a particular dial if the student has gone too long without noticing its faulty operation; the fuel tank for example! This simulator also has an excellent training vehicle in the OCRA (Optical Crew Resource Analyser), this (rather suitably for a Belgian company) is placed in a bicycle helmet which fits over you head and has an additional eye-piece by which the instructor can track on the computer where

the student is looking. When I was flying the Jet Ranger onto an instrument approach this worked like a dream, showing I looked at the artificial horizon hardly at all and mostly seemed to have my eye on the fuel gauge! As an instructional aid I think this is extremely helpful to both student and instructor. Moreover, the machine is terrific to fly, with interesting graphics such as Las Vegas, where we flew down the strip and even got sprayed by a hotel fountain!

It is possible to make the simulator to fit to the parameters of different helicopters, PAS for example has a Eurocopter and anyone buy-



ing a new machine only needs to specify which helicopter they want.

The Nordam Group have restarted the 1980s conversions of Hughes 369s and MD500s to 'E' model nose. Steve Giddings from the Helicopter Club of Great Britain had flown-in in his newly converted formerly C model into HeliTech, and was very happy with the conversion, which he says makes it much easier to see as well as making the machine a smoother and faster ride.

Patrick Corr of Helicopter Adventures International was celebrating his 100th staff member, not bad for a company which started with one flying instructor and his helicopter. He now runs three types of instruction simultaneously at his Florida school: FAA licences, JAA licences and military licences, the last of which is government funded.

One new regulation which is coming in by 2008, Ron Jenkins, formerly of the UK CAA says, "will affect all training schools equally". This is that all pilots worldwide, even those already flying, will have to take a language test, even those for whom English is their first language. Dare one suggest this is a new way for the CAA/JAA to make money?

One visitor to the show (of more than 7,600) was Per Lindstrand, best known for his balloon trips including



attempting to circumnavigate the world with Richard Branson. Per, is



full of new projects and has left the world of ballooning behind, he said, "the market is dying. In 1988 there

were over 300 balloons flying, last year only 41. People no longer appreciate quality, the market has become totally price orientated."

Having sold his balloon business to Cameron Balloons, Per has become involved in inflatable architecture, which uses balloon-like structures as temporary and sometimes permanent coverings. These are much quicker and easier to erect and store than rigid frame assemblies. His latest project is the National Express bus station at Heathrow Airport. "One of the advantages of an inflatable hangar," says Per, "is that it can easily be put up for 6 weeks, brought down, moved and reinflated." He sees a lot of applications for private helicopter owners.

Working with Per at Lindstrand Technologies is John Pattinson, who, with his wife Sasha (daughter of Mike Smith of HeliAir), has recently bought Copter Covers from Scott and Kirsty Parker. They are already enlarging the company and looking for new patterns to create.

2005 HeliTech was an inspiring place full of ideas, simulators and ways of improving existing technology. The next show is in 2007.



Nordam Group's Hughes 369 and 500 conversion to the E model look



The Wallis Days 2005, organised by Woody DeSaar and Ron Bartlett at Shipham Airfield and Reymerston Hall, took place in spite of two days of drizzling rain and overcast weather, a typical August in England.

One of the most exciting things about the day was the MH1 mini helicopter, designed and built by Julian Mills. Julian is an engineer and has spent three years designing and two years testing the MH1. The helicopter is about as 'back to basics' as a helicopter could be. He based the design on the MH1 radio controlled model, which he then enlarged into full size. The machine looks a little like the early works of Sikorsky; a simple aluminium frame, with a single seat. Built on a conventional model with teetering head main rotor



and tail rotor, it has a normal pitch mechanism operating via a push/pull rod. The MH1 uses an engine made by Yamaha and originally used in

motorcycles, and a gear box made by Mitsubishi.

Julian says he has made several improvements since the helicopter was first shown at Kemble in 2003. He has made the machine more stable by changing the rotor head and giving the rotor blades a six degree twist which has increased its efficiency, and enabling the pilot to use 5% less



power. He has made a new tail boom and is manufacturing a tail fin, hoping to increase stability. In tests Julian has flown the machine for 20 hours and reached a height of 25 feet and got up to speeds of 50 mph. All of which sounds very much like the early days of helicopters with their trial and error developments.

The day before the show the High Command Gyrocopter had its first test flight done by Woody DeSaar, who is, he tells me, "the only CAA test pilot on gyrocopters." The High Command is the improved and upgraded version of the still ground-

ed Air Command gyrocopter, which was not allowed to fly after two fatalities with airline pilots on their first flight in the 1990s (the Air Command is a single seater). However, the new model has been improved and its thrust line changed to make it more stable. Woody was impressed by his flight in the modified version and it seems likely that the CAA will remove the restriction.

Woody himself usually teaches on the TwinStaar, an American gyrocopter, in Ireland and France and finds the machine the most stable gyrocopter he has ever flown. In fact he compares it to the gyrocopters



made by Ken Wallis and says that Ken believes the Twin Staar has some similarities with his gyros.

Ken opened the day at Shipdam and then invited the gyro-buffs to accompany him to Reymerston Hall to see his line-up of machines, including Little Nellie, which became so famous after flying Sean Connery (actually Ken in disguise) in the James Bond movie, *You Only Live Twice*. He does not allow other gyrocopters to fly into his strip, short and surrounded by high trees.

Other machines at the Wallis days included a Benson gyrocopter which had lost its rudder and was not flying, and an American Little Wing. The Little Wing looks like an aeronca champ with a rotorhead, and was one of those gyros like Cessna CH-1 (built in 1953) and the flying car that attempted to combine the benefits of both helicopters, aeroplanes and cars.

As well as the machines themselves SGT-Westlake had a booth promoting 50 and 90 hp engines suitable for gyrocopters. GH-J

## Dornier Wal

by M. Michiel van der Mey

*LoGisma, Euro 18, pp224*

*ISBN 88-87621-51-9*

[www.dornierwal.de.tf](http://www.dornierwal.de.tf)

The author, who is a Dutchman living in Germany, has always had an interest in the sea and particularly in the Dutch East Indies. As a young man he developed a passion for the Dutch Navy's Dornier Wal flying boats, which were nicknamed the Pisa boats (you'll have to read his book to find out why). His first book about the Wal was published in 1987, but this is a far more inclusive book with photographs and information about the flying boat and the industry from which it came.

Lots of interesting facts about flying boats emerge from this book, including an emphasis on how much people looked on them as boats (hence a lot of low flying) rather than planes.

Count Ferdinand von Zeppelin (1838-1917) whose name was enough to strike fear into the heart of a First World War Londoner, was instrumental in the development of flying boats in Germany, with his interest and aid to the engineer Claude Dornier, who in his turn inspired Zeppelin to build aircraft (as did the advent of WW1). In August 1914, Dornier was ordered by Zeppelin to build a flying boat, and by 1916 he had constructed the R-1, and later a whole fleet of R-11s, 111s, and 1vs. These were the predecessors of the Wal, which made its own maiden flight in November 1922.

In 1919, the Versailles Treaty pro-

hibited the manufacturer of large motor-driven air planes, however Dornier and others managed to slip under the regulations and develop and market their flying boats under licence in countries such as Italy, Spain, the Netherlands, Russia and Japan. Very early on the Wal was

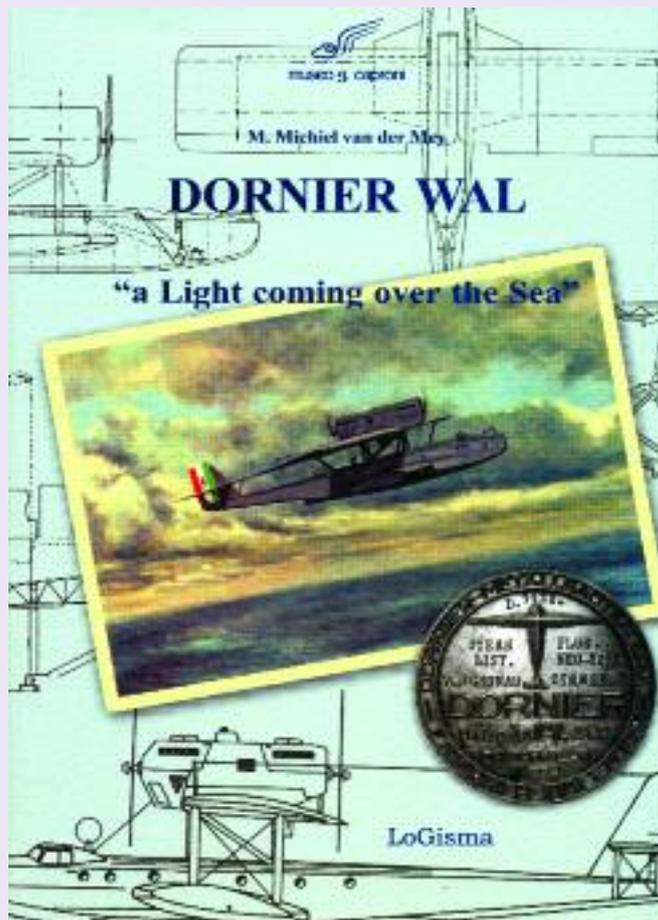
As well as the history and historic uses of the Wal (it was the first aircraft for at more than one airline in South America) the book covers the construction and development of the Wal in considerable depth, including its military usage and weapons.

There is an excellent section on the expeditions and pioneer flights and records for which the Wal machines were used including by Amundsen to the North Pole. Amundsen's Wals were built to his own specifications with skis mounted underneath so taking off and landing on ice was possible. However, as you read through the story you see just how difficult such an undertaking was and what disasters they ran into. This part of the book is definitely a gripping read.

The appendices at the back of the book cover all the countries in which the Wal was used and list all the types of Wals built, including whether they were military or civilian. The pictures and maps used throughout the book really enhance the story and the whole thing is both a very enjoyable read and a very useful research tool for

anyone who wants to know more about the Dornier Wal, its time and its uses. This book will definitely fill a hole in the market, the only major criticism I had was that there is no index and personally I thought it needed one. However, he is about to go into second edition so perhaps this will be rectified.

*GH-J*



seen to have great potential for work in places such as Spain and South America, and, for the Netherlands, in policing the Dutch East Indies. There they had 46 Wals (although there were never more than 15 in service at any one time) covering some 15,000 islands stretching a distance from the West of Ireland to the Caspian Sea.



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**Hiller 12 OH-23B, N33514**

The pilot, who had 7,152 hours of which 16 were on type, had agreed to take two associates of the owner for short flights from Sywell Airfield. The weather was poor with a 600 foot cloud base, 3,000 metres in light drizzle and light and variable winds. The pilot assessed the weather as suitable for hovering and low level circuits. After attempting to fly with both passengers on board, which he decided did not give enough power in hand, he took each passenger for a separate flight. After he returned with the second passenger the owner asked him to take up a third person. Third passenger climbed into the helicopter rotors running. However, after approaching to land from this third detail, at approximately 60 feet agl and speed of 40 kts the engine suddenly lost power. The pilot put the helicopter into autorotation, concentrating his efforts on maintaining a level attitude while attempting to cushion the touchdown with collective. The helicopter touched down without significant yaw and with some forward speed, but it bounced some feet into the air, hit the ground a second time right skid low, the rotor disc then toppled causing the main rotor blades to strike and sever the tail boom. Neither pilot nor passenger were injured and there was no fire. Tests done by the AAIB showed that while there was still fuel in the tanks, it was close to the minimum usable and that fuel flow ceased when the nose was pitched up, as would be the case when the helicopter was transitioning into the hover; accounting for the sudden power loss. They felt that the pilot's action with the helicopter saved him and the passenger from injury. They recommended that the pilot and owner establish a better knowledge of the helicopter's fuel consumption, with records of flying time and fuel consumed, particularly in the hover, and less reliance on the gauge, which can often be faulty.

**Robinson R22 Beta, G-SUMT**

After a flight of 30 minutes the pilot and his passenger (also a R22 rated pilot) returned to the airfield. The pilot descended to 15 feet and taxied over to his intended landing area, where the helicopter crashed. The pilot recalled only that there were no other aircraft in the area and the windsock was 'full', he nothing else until he regained consciousness in the wreckage of the helicopter. The recollection of both pilots was the helicopter flew normally until the landing

when it slid back and pitched up, yawing right. The pilot confirmed there were no unservicabilities on the helicopter. It is not known if he had fainted.

#### **Schweizer 269C, G-HFLA**

After a short training flight in the area the instructor and student returned to Norwich Airport. Weather conditions were clear and gusty, with a reported surface wind of 230/23 knots. The instructor demonstrated an engine off at 1300 feet, aiming for the grass runway. At a low height he flared, then levelled the aircraft and cushioned the touchdown with collective. As he did so the aircraft hit the ground hard and came to a stop some 10 to 15 yards further ahead, having sustained substantial damage. Neither occupant were severely hurt and the instructor, in his report, did not know the reason for the incident but suggested it might be the gusty wind conditions.

#### **Gazelle HT Mk 2, G-GAZL**

The pilot was on the approach to Sheffield City Airport when there was a loud bang and a jolt. The engine and rotor systems were operating within limits so he landed normally. After landing he found the right engine cowling was missing and that there were marks on the main rotor blades. Two fractured parts of the missing cowling were later found. Each cowling panel has two hinges at the top, a lower latch and part of a single latch which secures the forward edge of both panels. At least one of the top spigot fittings had failed through cracking from previous overloads and the aft lower latch had probably not been fully secured. Tests showed that this aft lower latch can appear latched when it is not actually engaged. Detailed visual inspection was recommended.

#### **Robinson R22 Beta, G-DERB**

Following a flight during which unusual vibration developed, the helicopter landed safely but then experienced intense vibration whilst hover taxiing to a maintenance organisation. Inspection showed that one of the main rotor blades had cracked from the trailing edge, through approximately 76% of its chord, as far as the spar at about the 1/2 span position. The teeter hinge was found to be extremely stiff, and this had been assembled about 20 hours beforehand without the necessary shims. Cracking attributed to higher than normal stresses caused by the stiff teeter hinge.

#### **Robinson R22 Beta, G-TGRR**

A student pilot was on a cross country navigation exercise, returning to Shobdon from Wellesbourne Mountford. His instructor became concerned that the weather was deteriorating too much for the student to return. He therefore called Wellesbourne Mountford and requested his student to remain on the ground until he flew over, with the intention of leading the student back to Shobdon in a loose formation. The instructor flew back and he and the student discussed the weather situation. The student apparently felt confident in flying back to Shobdon following his instructor and using a discrete frequency so they could communicate during the flight. However, during the return flight the student told his instructor he was having difficulty following him and had lost sight of the lead helicopter. Despite numerous attempts by the instructor he could not make further contact with the student. The student's helicopter had crashed in a field 2nm west of Stratford-upon-Avon, fatally injuring the student. AAIB analysis determined that there was no mechanical failure, nor had the student run out of fuel. Damage to the rotor system, low impact strikes on the tail cone, missing perspex and witness statements are all consistent with the loss of rotor rpm and the stalling of the main rotor blades. In discussion it was noted that the governor was in the off position, the weather below student minima and the student was not used to or practiced in formation flying. All of which might have led to loss of concentration in a low rpm situation, and incorrect handling.

#### **Robinson R22 Beta, G-CDBG and Robinson R44 Astro, G-OLOW**

On the morning of the accident an instructor parked R22 G-CDBG at the refuelling area. After he parked the R22 another instructor parked R44 G-OLOW next to the R22. Later in the morning the instructor who had parked the R44 next to the R22 briefed a student to go out and pre-flight and start-up the R22 in preparation to a local training flight. After the student had started the R22 the instructor joined him and just prior to lift off there was a sudden bang and a massive vertical vibration. As the instructor was closing down the helicopter he realised that the main rotor blades of his helicopter had collided with those of the R44, which had just started up. Since then the operator has painted measured parking spots in the refuelling area.

**Robinson R44 Clipper 11, G-SHAN**

A very experienced pilot (9,000 hours, 4,500 on type) had taken off from a private site on a farm. He was making an approach to a field a few minutes later when he heard a slight noise when the helicopter was about 100 feet agl. After landing it became apparent that one of a pair of wires, which traversed the field and the valley had been severed by coming into contact with the helicopter's main rotor mast fairing. The damage was limited to that fairing. The pilot concluded he had not seen the wires which were green, on a green background of fields, and spanned 900 feet across the valley. There were no injuries.

**Enstrom 280FX, G-MHCK**

Following a normal start-up the pilot lifted into a hover, when he noticed a burning smell and saw smoke coming from the area around the engine. The helicopter then lost power and landed back on the pad. The pilot was informed by ATC that the aircraft was on fire and he shut off the fuel and electrics and he and the passenger exited the helicopter without injury. The fire was extinguished by the Barton Airfield Fire Services. After the fire had been extinguished the pilot looked inside the engine bay and discovered that the exhaust pipe from the turbocharger

had become detached. He concluded that the flames were as a result of the paint being heated by the exhaust exiting the turbocharger.

**Agusta Bell 206A JetRanger, G-OJEF**

The pilot had flown from a private site to Haverfordwest Airfield and made a normal approach to Runway 21, surface wind 220/10-15 kts. He taxied off the runway towards the refuelling point. As the helicopter neared the hangars it turned sharply, which the pilot tried to correct. He decided to turn the helicopter into wind and try to take off, on raising the collective lever. However, the helicopter did not respond and suspecting there was a technical problem he elected to land. The landing gear contacted the ground and the helicopter bounced, rolling left. The main blades hit the ground and the main rotor mast sheared. The main rotor head and blades detached and the fuselage fell on its left side. The pilot did shut down checks and both occupants disembarked uninjured. No definite cause of the accident was identified but the AAIB noted: "The surface wind was from the left rear quarter...weather-cocking effect induced a yawing motion which, combined with the airflow under the horizontal stabiliser pitching the helicopter nose down, created difficult flying conditions for the pilot."

# TREE HOUSE GAME LODGE

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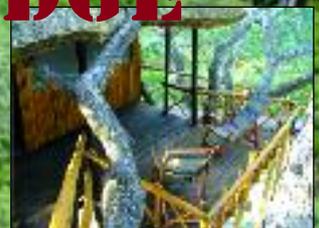
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**W**e stopped in at the Safety Roadhouse for some of the home brew and the barman remarked that helicopters didn't land here anymore. "The last one," he said, "was during the Ice Challenge, when the young men sunk their boat." He laughed and we had the feeling that was one of the best things that had happened around Nome for a long time.

Roadhouses were rest-lodges scattered along the travel routes of the gold rush era for miners and hopeful prospectors. Basic places they provided food, drink and shelter from the weather, they were also a social centre where miners could pick up newspapers and avoid isolation. Sometimes there were even dances to an elderly phonograph. In 1901 a meal cost \$2. Although most of the lodges faded away into history when the gold rush ended and aeroplane travel became prominent the Safety Roadhouse remained thanks to the Iditarod Husky Race.

The Safety roadhouse, 22 miles southeast of Nome, takes its name from Port Safety, and is the last Iditarod checkpoint before Nome. The Iditarod being a yearly race of husky-pulled sledges from Anchorage to Nome, which was started in order to commemorate the 1925 serum delivery to children suffering from diphtheria. The husky

teams got through and saved the children and every year since 1973 this success has been celebrated by the race. The Iditarod trail is full of twists and turns, steep banks, icy hills, and long stretches across the tundra. The trail used in odd-numbered years differs from the one used in even-numbered years, but both trails have Safety as their penultimate stop. The southern route, used in odd years, is 1131 miles long, while the northern route, used in even years, is 1112 miles.

About 10 miles further east from the Safety Roadhouse are the 'Trains to Nowhere', three steam locomotives from the early part of the last century frozen in time. These are the relics of an industrial idea that failed to take into account the fury nature can unleash in this part of the world. The trains, which were indented to carry gold and miners, sit in the spectacular back round of Safety Sound. This 30-mile stretch of tidal wetlands has now become home to many migrating birds and has become an important nesting area for Tundra Swans.

The next Iditarod starts on Saturday March 4th 2006. When the next helicopter lands may depend on anything from boys wanting to drive around the world or Iditarod judges who want to watch from the warmth of the air. *GH-J*