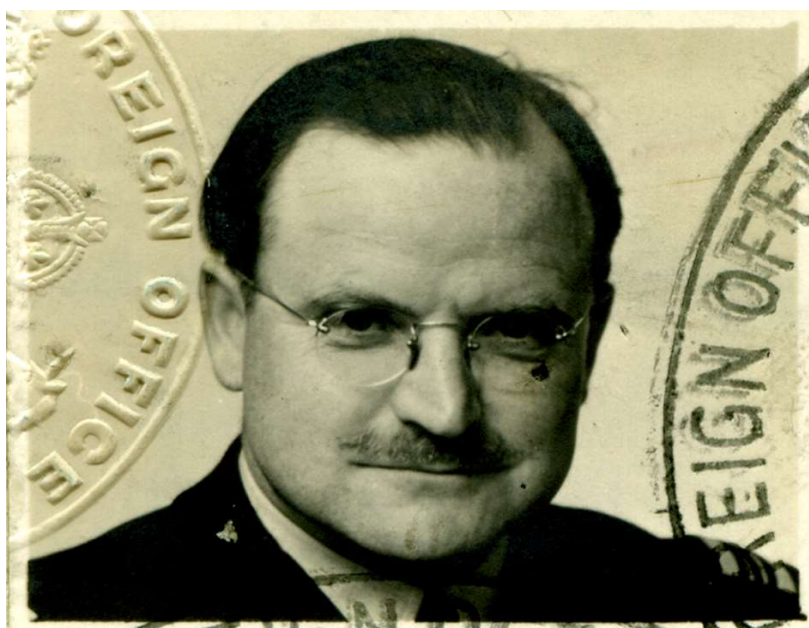


MAIDENHEAD HERITAGE CENTRE



Transcript of the Diaries of Capt. J A (Arnold) V Watson O.B.E.



By kind permission of his daughter, Mrs Pamela Mainwaring

SUMMARY

Capt. Watson joined the Air Transport Auxiliary in June 1940 having sought permission from his then employer Lord Wakefield (Castrol Oil).

Although he held a pilot's licence at the time, he had fewer than the minimum hours for acceptance but was accepted after a flight test.

His entire time with the ATA was spent at the Headquarters at White Waltham.

Initially he was ferrying, but his skills were recognised and he was later promoted to Airborne Navigation Instructor where, mainly on Oxfords & Ansons, he passed out upwards of 80 pupils, plus a few that he didn't!

However, the most important aspect of his ATA career was to come when he was asked to take over the role of Flying Technical Officer where he was responsible for flight testing any new aircraft which the ATA were going to be asked to ferry and to provide technical information regarding the flying characteristics which would be set out in Ferry Pilots' Notes.

This involved testing the low speed characteristics of each aircraft in a wide range of weather conditions and all aspects of engine and propeller settings.

From time to time, this gave cause for alarm as at times the manufacturer's own test pilots had not tested some of these aspects.

There is no doubt that Watson's work resulted in the greater safety of many pilots. This is reflected in the fact that, at the war's end, of the thirteen OBEs awarded to the ATA, he was the only officer below the rank of Commander to be so decorated.

Quick links to start of year –

[1940](#)

[1941](#)

[1942](#)

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[1945](#)

DIARY NO. 1

Transcriber's notes -

1. This is a transcript of handwritten Diary No. 1 (of three) belonging to Flight Captain Watson who was employed by the ATA from June 1940 to June 1945.
2. The transcript is printed in chronological order, although that part of the diary between February and November 1940 was not written until February 1941 when he decided that the whole story should be known. That part was therefore written with aid of memory and reference to his log book.
3. Explanatory notes or comments, by the transcriber, are in blue.
4. No attempt has been made to correct spelling or improve grammar. It has been transcribed as written.
5. The Diary starts with notes on the inside front cover describing the letting conditions of a property which he presumably owned.

INSIDE FRONT COVER

4 Oaks Av

Year or the duration whichever is the shorter. Thereafter one month's notice either side.

- (1) No Jewish tenants.
- (2) No subletting whole or in part.

April 14 1941 informed agents rent not less than £100 exclusive of rates.

NB LMB suggests we let it "partly furnished" or we may have difficulty in regaining possession.

15 Nov.1940

I have never kept a diary because I suspected that one might thus develop a tendency to dwell in the past, the days that will never return, instead of thinking of the days to come.

But the times we are now living in are so unprecedented that one more change in my way of life will not matter. And indeed a record of daily thoughts & happenings should be valuable in the peaceful years ahead, as an interesting reminder of how we lived in 1940.

Moreover, my work as a pilot is probably going to be the most physically exciting interlude in my working career. It still seems extraordinary to me that after 12 years in City offices I should find myself earning my living as a pilot of our fastest aeroplanes. Not so long ago, I used to day dream of such a bliss – but now it has happened, one gets so used to it that 80% of the job is just work. Yet each day is different, & something happens or a story is told that is worth jotting down.

It seems a pity that I did not start this journal when war was declared and our world began to rock. Or when I joined Air Transport Auxiliary about June 1st 1940.

Then when it was all completely fresh, one's impressions of a new aeroplane, or a new kind of work, would have been most vivid. But I didn't. Before I forget it all, I will try to get time to go through my log book and note some things that happened. This I shall put at the back end of this book.

So read back of this book first – before coming to Nov 11.

[So begins the resumé of the period from May to November 1940](#)

Today Feb 18 1941, I begin to try to recall incidents and impressions of flying military types with A.T.A. It is a pity that I did not note them daily at the time. But I did not start this diary until Nov 11th 1940. And, indeed, during the summer I was very tired by the time I got home towards 9 or 10 p.m. We usually were flying until sunset. So let me see what I can remember now –with the aid of my log book.

27 May 1940 Since advertising had been more & more curtailed, I felt more & more that I could be doing something more useful to the country than stay on at Wakefields, amidst the ruins of the Publicity Dept I had so lovingly built up over ten years. It was most disheartening, after the exciting years since 1929, to find that the firm was prohibited by the Petroleum Pool from relying on me to keep the Castrol flag flying.

So, for more than one reason, I asked friend Bradbroke whether I would be acceptable as an A.T.A. although I had but 174 hours solo instead of the required 250.

Fortunately, the Directors consented to my volunteering and most generously said they would make up my salary & keep my job open, as they did for the other Wakefield men in the services.

Brads got me a flight test on a Moth with Chief Instructor Kemp. I had not flown for 10 months (the longest gap since I took my license) so I wondered whether I was too rusty to pass. In fact, I undershot on the approach, but otherwise managed pretty well.

Two days later I was indeed thrilled to receive a contract to serve as pilot for that famous company British Overseas Airways – 1 month on probation, then as Second Officer – and to report for duty as soon as possible.

It felt like a great change, after working indoors all my life, to be offered such a job.

No office, no staff, no catching trains, no regular mealtimes or evening homecoming. But I welcomed the change & the chance of doing something useful. Way back 1933 when learning to fly, I had anticipated that a Pilot's License would keep me out of the Army. But I never thought a man with spectacles would be allowed to fly military types. A.T.A. was not visualised then.

4th June 1940

I reported for duty. It was a lovely summer day. To my delight, I was offered a passenger trip in an Anson to Weston super Mare, S. Wales & back. In peace time, I could only afford to buy such a trip about once a year!

Then I thought the Anson a large & impressive military aircraft – excellent acceleration on the take off. Little did I expect that I should soon be flying one, and that because the Anson is so safe & simple!

But the first landing gave me a fright. I had never seen the modern “power-on” approach & felt sure we were hitting the hedge.

5th June 1940

Next day I had an hour's dual on a Stinson four seater & then went solo for the first time with a wheel control & the throttle on the wheel pillar. I remember my approaches were very ragged after ten months on the ground.

6 June 1940

My third day was not only very interesting – but almost too exciting. First an Anson taxi to Coventry arriving at the Whitley factory by 10.15. I remember noting with astonishment that the taxi pilot did not use a map all the way.

Then across the Irish sea to Belfast in a Whitley with pilot Hood. My job was to wind the wheels down if they stuck up. They didn't on ours – but they did on a second machine which also made the trip. It was then found that an ordinary broom was jammed up in wheel space behind the engine!

We had to bring a Wellington back to Norfolk. The take-off shook me to the core. Apparently there were three tons of petrol on board. When we were indicating 80 m.p.h. we showed no signs of lifting and had covered three quarters of the aerodrome. Just as I thought we were going to hit the fence, Hood heaved & got the front wheels over it!

In the middle of the Irish Sea, a warship challenged us with its lamp, before I could find our signal pistol we were out of sight.

Then when we landed in Norfolk, the R.A.F. sergeant said we had a row of bullet holes in the tail, and that a Hun had been round in the last hour! So I thought that this is a typical day in the life of an A.T.A. pilot, then I wonder if I can stand the pace!

Actually they weren't bullet holes; it dawned on us that our tail wheel must have gone through the fence on take-off & collected a strand of barbed wire – which made the punctures & then blew away when the wheel retracted. The day ended with my first ride home on a Courier.

8 June 1940

Again – Belfast & back! Bradbroke let me fly the Whitley for over an hour – what a thrill. I remember finding out how to steer a course on the gyro. Coming back in a Hereford, Brads practised low flying while I had a grandstand view from the navigator's seat in transparent hemisphere which gives the most wonderful outlook in the nose.

Then I held the Anson controls for the first time on the taxi home.

11 June 1940

My very first solo delivery flight! And the first time I had ever flown a brand new aeroplane, or with a constant speed airscrew. It was a Percival Proctor from Luton to Abingdon. It looked to me like a Spitfire then – but now it feels like a Moth! The weather was a bit hazy & the view is the poorest part of an otherwise excellent machine. So I was rather anxious during the trip. I took the precaution of a circuit as passenger in Kirkby's machine before setting off. All went well – although the poor view worried me on the approach.

In the evening I did my first taxi trip – with a Courier to Hullavington.

13 June 1940

Two trips in Magisters from Hanworth to Stoke on Trent.

14 June 1940

Two Maggi's to Stoke and one to Hawarden – three deliveries in one day.

15 June 1940

Approaching Farnborough in a Proctor there was oil on the windscreen from the C.S. Airscrew. Looking out sideways, I was horrified to see a strange machine about half a mile away which I recognised as a Messerschmitt 109! So I departed as fast as I could. Reaching Farnborough, there it was on the aerodrome; it was being tested by an Englishman!

24 June 1940

Brads put me in charge of a flight of six Moths from Cheshire to Inverness. I was to lead two Poles (each with 1000 hours!) & three new Englishmen.

This seemed a heavy responsibility, for I had never before flown in Scotland and if the Poles had to force land, I must land also to explain their lack of English before the military arrested them. In the train going up, I had to talk in German to the Poles – much to the alarm of the British Public, who stared at our lack of uniforms and our parachutes in the racks!

We took off in line astern, with me proudly flying one of Gladys's stockings from each wing strut to distinguish my machine. We were delayed a day at Prestwick by a gale but reached Inverness O.K. Then 26 hours in the train to Chester for 6 more Moths. Thanks to a tail wind, we delivered these with only one stop for refuelling.

Moreover we were lucky enough to be given a lift down to Abingdon in a R.A.F. Whitley. Not realising they were going "over the top" at 7000 ft I went to sleep – but soon woke up with excruciating earache, through failing to swallow on the way down. So we got back in 3½ hours instead of 28 hours in the train. The C.O. Mr D'Erlanger picked us up at Abingdon with an Anson, & congratulated me on the work of my group.

2 July 1940

I was sent to the School at Bristol for the conversion course for single engine military types – although my solo hours were still under the required minimum of 250 (about 200 in fact).

Then I greatly appreciated 14 days of technical lectures on superchargers, flaps, hydraulics, variable pitch airscrews etc. the only snag was the constant unserviceability of the dual Fairey Battle.

During the fortnight I had only two trips of 40 mins on it – and we had trouble on each flight. To me, it seemed then a heavy powerful monster with a hot & smelly cockpit. Finally I was ordered back to White Waltham, to be sent later to C.F.S. for the course there. So it all turned out for the best in the end.

21 July 1940

The great O.P. Jones, senior skipper of Imperial Airways, flew me, as his only passenger, down to Newquay! He'd not flown a Courier before so I was privileged respectfully to show him the taps. As we walked to the machine he said "It must be 20 years since I flew without four engines and a lavatory"

I picked up a Hornet Moth (memories of our happy honeymoon) & cracked off for Gatwick. At Leith Hill, the oil pressure failed, so I reduced revs & managed to descend steadily into Gatwick. There was little oil in the tank which suggests it was not properly filled in Cornwall.

24 July 1940

Flew a British Airways skipper across to Brooklands & left immediately – which was fortunate because half-an hour later the Huns bombed it.

It was my first visit to Brooklands since the war.

29 July 1940

Central Flying School at last! Instructor Bisley thought my experience a bit small for the Miles Master, but flew me round once and made a landing for which he apologised. He had a cold and was not really fit. Then I flew three circuits O.K. and that was that. (40 mins). but before he got out a tyre burst taxiing. They mended it in time for me to do 40 mins solo (nearly overshoot once on the short way of Upavon's rolling ground) – and I returned the same day to W. Waltham – triumphantly qualified in the eyes of C.F.S. – to fly fighters.

My principle impression was the push in the back when going through the gate to take off; the greatest difficulty was to land & stop in the distance available.

30 July 1940

My first Master to deliver was given me next day – to Sealand. In the evening I was taxi pilot in a Puss Moth, & had to do a crosswind take off from a strip in the temporary field at Wroughton. It was three years since I had tried this with an instructor. It was O.K.

31 July 1940

Another new Master to Sealand. I enjoyed the high cruising speed – 180 – which got me there in 55 mins. Brought back a rotten old one for overhaul at Reading. Right wing low, practically no brakes, & when I wanted to get out the door was jammed. They unscrewed it bodily.

3 Aug 1940

After my brief experience of four Masters, I was given my first HURRICANE – Brooklands to S.Wales. The great Reynell showed me the taps. Poor fellow – he was later shot down by the Huns; he was perhaps the greatest aerobatic pilot of the Hurricane.

Of course, I had to re-read the pilots notes about the Hurricane. The take-off was less difficult than I expected. She wants a little right rudder, but I found it awkward the first time changing hands on the stick to lift the wheels with my right hand. The Master had everything conveniently to hand on the left behind the throttle.

Over the Savernake Forest, how incredible it was that I, with so few qualifications, should be allowed to fly such a valuable & powerful single seater. Should I lose myself in it? Could I land it undamaged?

As it happened the landing was safe but not pretty. I had yet to find out if one approaches with a good deal of throttle, then the machine is already in the landing attitude, and it is unnecessary to bring the stick back before touching down. If you do, you land tail first. Conversely, if you approach "power off" at a slightly higher speed, then the nose is well down and then one must get the stick back to make a 3 pointer.

4 & 5 Aug 1940

On two successive days I had Hurricanes from Langley to Silloth near Carlisle. An hour and a half to the Border! The first time I got a lift back in a R.A.F. Anson to Benson, leading 5 Battles flown by high spirited Naval Sub-Lieutenants. They alarmed me; two disappeared after the take off. The other three did tight turns round us as far as Barrow – then formatted on us 6" from our ailerons! To crown everything, my pilot chose to go home by way of Aberystwyth & the Welsh Mountains just under the cloud base!

7 August 1940

Mr Hazeldine gave me an hour's dual on the Anson then sent me solo – first time in a twin. It seemed a very large aeroplane at first but that feeling soon wore off since it has such nice manners. Perhaps the most difficult thing was to taxi neatly across the aerodrome, steering with the throttles for the first time. The rudder being out of the slipstream is not much use, & the brake lever is awkwardly placed on the Anson. I quickly realised that it was like steering a ship. You had to check a swing before it developed. Also one must stop a turn with the inner engine just before coming on to the desired direction.

In a crosswind this is not at all easy since the Anson has so long a tail & so much keel area. Later I found the Oxford easier to taxi accurately.

On the approach, one could not pump the flaps down over 80. Approach at 70. Later doing dual force landing practice, I found it possible to side slip at 70 – 75 then come over the hedge at 60 – 65 sit down and stop in 300 yards from the hedge. A remarkable machine is the Anson.

10 August 1940

En route to Sealand in a Master, found stbd petrol tank would not feed, so landed to refuel at Shawbury with 8 gallons left in the Port tank.

18 August 1940

Took my first Battle, & landed at Hawarden due to bad weather – with three others on the same trip.

26 August 1940

My first American military trainer, a Harvard from Walsall. Nice landing at Shawbury but though very smooth running, she seemed very slow compared with the Master – only 140 cruising.

27 august 1940

I had the biggest fright of my life this day. It all happened because I got cross at the delays at Montrose. I had gone up as a passenger in a Master (by way of the Isle of Man 1¾ hours from Reading) & wanted to bring my Master back the same day. The machine was not ready, then I got stuck in unmarked soft ground taxiing it. So I did not leave Montrose until nearly six o'clock, cracked through between the Glasgow & Edinburgh balloons in excellent visibility. Refuelled at Blackpool in 15 mins and was tempted to carry on, by the brilliantly clear evening – although it was 7.45.

Then the trouble began. At Chester I noticed the port petrol tank was not feeding, although I rocked the machine about. So I decided I would have to land at Worcester.

When I got there, the sun had set, & my blood ran cold when I saw the aerodrome obstructed with about 100 motor cars.

Had I enough petrol in the good tank to go elsewhere? 10 galls – that gives me 20 minutes in “weak”. So I shot off for Little Rissington, hoping that I would not also be obstructed. Then I found it was too dark to see my map. Then I saw blue flames from the red hot exhaust stalks of my engine, & realised with great alarm that night had fallen – and I had never made a landing at night even if I could find an aerodrome. Then I was really frightened & thought a crash was inevitable now.

In the gloom, I recognised no landmarks, realised that I could not hope to find Little Rissington, & must try to reach Abingdon where night flying practice does go on. But could the petrol last me that far?

Suddenly seeing a possible field, my hands instinctively swung her round as though to try a force landing wheels up. But I checked myself, thinking that if there is to be a crash, I might as well carry on for a few minutes while the petrol lasted. Then for the first time, I remembered I’d got a parachute. Why not jump, save myself & leave the machine to its fate? Miserably, I thought that would finish my work as an A.T.A. pilot. At that moment I saw twin strips of concrete flash past underneath. That must be the Oxford By Pass. So I got on it to lead me to the river. The river arrived & I went through Oxford at about 200 feet. I remember that when the river headed west, the first mass of houses would be Abingdon, & that the aerodrome was north of the town. When I got there the aerodrome had its boundary lights on! My hopes of saving the aircraft survived. So I quickly did my UMPF & went in. I could not see the Airspeed Indicator, nor the ground clearly so I hit wheels fast & bounced up about twenty feet, put her down & she ran on with the brakes screaming – just coming to rest at the edge of the aerodrome. Then the motor died when I switched off the green undercarriage lights which were dazzling me.

But my troubles were not quite over. A lorry came out to me with a searchlight and a Lewis gun. The R.A.F. were taking no chances. What was this machine that landed in the dark, without doing a circuit & giving no recognition signal? I shouted “Friend” at the top of my voice & was duly recognised.

Actually, luck was on my side with the landing. It was too fast – but my flaps had not gone down – so the accidental speed was a good thing. I spent the night in the Officer’s Mess, & delivered the machine to Reading the next morning.

Next morning I met there an ex-member of Brooklands Club who had brought a Whitley in from bombing Italy during the night. One engine caught fire over the Alps, but they kept it going slowly & managed to get home on the other! To think that when I last saw him, we were both flying Moths on a Sunday afternoon.

28 Aug 1940

After being so frightened the night before, and having slept badly, what would they give me today but my first Spitfire – and a Spitfire II at that with 12 lbs boost for take off! And as it happened, I was flown up in a Puss Moth by an old man who could scarcely find his way, so I had to direct him through the balloons at Birmingham. Had I known he was so uncertain, I would have flown it myself.

Fortunately, I was able to get to the Spit Test Pilot Alex Henshaw to show me the taps. And he gave me confidence, when I said it was my first Spit, by saying “Then you are going to enjoy yourself” And so I did – for the weather was lovely. When I asked whether I should take off with full boost the first time he said “why not? It’s there to be used” So I did. The take off acceleration was shattering but perfectly controllable. Then I shut down to +2 & 2600 & went along gently at 220 or so (!) trimming her as he told me. First check wheels fully up, close radiator to normal, start gyro & then trim the rudder feet off. She did the 45 miles to Little Riss in 10 mins. I recognised only the major landmarks – about 3 of them.

The landing was safe but of course not polished. How elated & exultant I felt on flying my first Spit safely. One of my dearest ambitions had come true. This did much to restore my confidence after the night before on the Master.

29 Aug 1940

Managed to find Burton Wood near St. Helens where I had not been before. And made a good landing – my first on a runway.

30 Aug 1940

Once it was the ultimate of my ambition to fly a Hawker Hart. Today I was given the chance – and welcomed it, but rather resented the prospect of discomfort in an open cockpit. How odd that I should have flown the Hurricane & Spitfire before the once-mighty & glorious Hawker Biplane. Naturally the performance, as such was, disappointing. Had I never had the Spit it would doubtless have thrilled me. But the Audax did give the real sense of flying instead of hurtling through space at the engine controls of some fantastic locomotive.

Thus I was tempted to do a real old fashioned side slip landing at Cardiff; she felt just like a big Tiger Moth.

In the evening, I flew one of the first Canadian built Hurricanes down from Shawbury to White Waltham in 35 mins. Misty in the lee of Birmingham, landed after sunset. I had some trouble getting the wheels down.

3 Sept 1940

The battle of Britain at its height. I landed a fully armed Hurricane at N. Weald in Essex (from Aston Down) 10 minutes after the Hun dropped 500 bombs there.

The airman who waved me in was wearing all he'd got left – Tin helmet, pyjamas & sea boots. He looked very amazed when I said "This war's getting quite brisk isn't it?" I didn't realise that the blitz had just happened. He had a bullet through the front of his tin hat which had torn the seat of his trousers! The hangars were burning, all the buildings were partly demolished, & bomb splinters were all over the aerodrome – still hot so I picked a few up. I had difficulty selecting a landing path between the craters. But remarkably few aeroplanes were damaged.

Later a Hurricane caught fire in the air & landed wheels up in flames. Neither the ambulance nor the fire tender could go out to it. The ambulance was on its side & the fire tenders tyres were all burst by blast. The pilot escaped but there were some thousands of machine gun bullets in the fire & these were going off for two hours afterwards, so no one could go near. Delayed action bombs also blew up at intervals so my taxi could not come to collect me. The operations room arranged a lift for me to Hatfield in a Blenheim. The Sergt. pilot landed at Radlett in error, and asked me up in front to navigate him to Hatfield! Visibility about 20 miles. Amy Johnson gave me a lift home from there in her Anson.

Thus I hitch hiked my way home after an exciting day – but the damage at North Weald was depressing, but thank God, the casualties were remarkably few.

4 Sept 1940

For the first time, I flew as a taxi pilot of an Anson, Henlow, Castle Bromwich etc. this sort of work does not permit my usual careful preparation of the route in advance. But I got away with it.

5 Sept 1940

A quick Spit on a strange route – to Wittering near Peterborough. Missed my first landmarks but got the navigation O.K. after that.

9 Sept 1940

Taking a Hurricane to Pembury, I was interested to see the R.A.F. bombing targets in the sea off the S. Wales coast

Leaving Brooklands, one had to take off through the balloon barrage, over the balloon pulled down.

For the first time, I had an accident. I took a Battle over the S. Wales mountains from Llandow to Sealand & landed normally on the main aerodrome. I was then asked to fly it over to the small aerodrome; I landed normally but when taxiing down wind, the strong wind gusted under my tail & the propeller tips were slightly bent on the ground. It was a most helpless feeling when the tail came up. Instinctively, my hand applied the brakes with the stick back. It was so unexpected. Had I anticipated the trouble, it would have been better to have the stick forward & brakes off. At the subsequent inquiry, I was held “partly responsible”

12 September 1940

An exciting day. I delivered a Spitfire II to Coltishall, so had the chance of running round the dear old Broads. It was interesting to see no holiday boats out, but every Broad obstructed with moored cruisers to prevent the Huns alighting.

While I was there, an operational Spit was compelled to land with the wheels up. He did it beautifully, but I was amazed how far it went, nose down & tail up in a cloud of dust.

My return trip was a Spit I to Tangmere; by the time it was ready rain had set in but I thought it good enough to start.

After leaving Norwich & Wymondham, it got worse, visibility down to 2 or 3 miles at most. I did not recognise anything for over 50 miles of that flatish country, so I slowed down to 160 m.p.h. eventually I recognised the River Lea valley & its tomato glasshouses near Broxbourne. So I stopped at White Waltham.

13 Sept 1940

Next day I did three jobs; first I took my spit to Tangmere in heavy rain. Cloud was low on the South Downs so I went through a valley & read the name William Osborne on a boat yard so I knew I was at Littlehampton & turned right along the sea shore. Steel had to land his Spit without flaps or brakes; air pressure gone. He came in at 100 & the strong wind stopped him just in the length of the temporary landing field. The main aerodrome had been properly blitzed. Then I did a Hurricane from Bedford to Kemble & brought an Anson back. A satisfactory day's work.

14 Sept 1940

After doing a “photographic” Hurricane from Farnborough to Hullavington, I had A Hart to Odiham. The hurricane was a special, full of cameras & without guns. The Hart's engine occasionally misfired & lost revs. So I kept a sharp eye for forced landing fields, & reflected how fortunate it was a bi-plane. One felt one had a chance of landing it safely. But it got me there, and I handed it over to a Canadian Squadron.

17 Sept 1940

A terribly rough ride in a high wind facing the sun in another Hart. At Aston Down, I flew round to attract the ground staff to help me after landing – without success. So I was fortunate to be able to wheel it on in the lee of the hangars & taxi straight up wind to the tarmac.

Then I did a Hurricane to Kenley & was left out all night, since the taxi did not come. Shared a bedroom in the Officers Mess with the Station doctor. Quite a blitz last night, & the next morning when I was having a shave at the barber's. Glad his hand did not jump!

18 Sept 1940

A Puss Moth (flown by poor Bodinaar, since killed) took me over to Gravesend. It reminded me of my first cross country trips from Croydon when I learnt in 1933. I was to take a Hurricane for repairs to Henlow. But the mechanic would not sign it out since it had a bullet hole in the main oil pipe & in the main frames. They mended the pipe with rubber tubing and two jubilee clips, and told me to "fly the fuselage gently"

Before I got away I saw the squadron Spits there in action against the daylight raiders. Just a mass of weaving smoke trails forming back and forth high in the summer sky. Shell Haven oil tanks were still burning across the river, after 3 days.

Just as I was landing at Henlowe, another Hurricane came in opposite me! He had three more tries to land down wind, in spite of a shower of red lights which frightened my taxi away to Luton! After that I rushed a Spit round London (west about) to Biggin Hill, where nearly all the hangars were flat. In a steep turn, she shock stalled, or tried to, the tail buffeting badly. So I flew that one straight after that.

19 Sept 1940

I'd just taken a Master off from Sutton Bridge when an oil pipe broke & the windscreen went black. I brought it back, landing with the little window open. Then found I could not safely taxi it, because I could only see sideways!

20 Sept 1940

Odd incidence today! I had a letter from Sherwood at Duxford & for the first time had a Spit to go there. When I landed he was changing the prop on the next machine! The last time we were together was at Wakefield House. Quite a change from designing a booklet together!

After that I did a taxi job in a Courier to Kenley and collected a Hurricane from Langley.

21 Sept 1940

For my sins, I spent a week on the ground in charge of 35 Polish Fighter pilots who had been sent to help us. They were unsuitable for our work & we had to send them all back except six. Doubtless they were great fighters but not exactly ferry pilots.

27 Sept 1940

Flew an Oxford for the first time, after a couple of circuits with Mr. Hazeldine. Little did I know that I was going to fly more hours in it than any other type; and instruct in it. I remember it did not strike me as very difficult, although as a twin I found it strange. Later I found how unpredictable the landing is, & with a full load the take off is poor. I expected to have difficulty with the throttles on the right, but it was O.K.

5 October 1940

I had the job of leading a "flight" of 3 Spitfires. After the take off at Little Rissington, I did two or three circuits looking for my two Polish pilots, & could not see them anywhere. So I concluded that they'd lost me & gone away on their own. So instead of proceeding at 200 m.p.h., I opened up to 250 m.p.h. & rushed off to Gravesend. Judge my astonishment – after landing there to find they had been so close behind my tail all the time that I could not see them! I'd forgotten they were "fighter" boys!

5 October 1940 (Probably 6 Oct)

Nearly sunset, I was given a taxi job in an Anson to go to Hendon & N. Weald. After 5 minutes, my port engine lost power & required high boost to give the revs. So I couldn't go to N. Weald & landed at Hendon instead – my first landing there – to pick up Capt. Henderson. As an experienced Anson pilot he diagnosed a broken valve, but decided to take off. We got home O.K. after dark, after landing at Northolt for another passenger – who wasn't there.

7 Oct 1940

My first trip in a Lockheed Hudson. Dlugaszewski flew me back to Heston. First time I'd seen an automatic pilot in use – or a tail wheel lock. It's regarded as our most tricky twin (at that time) but old D. landed like a feather. I was astonished to see that he did not put the pitch levers in "fine" or the mixture in "rich". When I asked him why he said "oh I forgot". I suppose he just does not ever have to go round again.

9 October 40

Today my first DEFIANT. The surface wind was gusting up to 50 -60 m.p.h. from the West. I had a Master to Brize Norton, the Defiant up nearly to Grimsby & a Battle across to Shawbury. I found the Defiant was tending to run hot so I had to throttle down to 180. She is of course slower than the Hurricane anyway, but one must approach at 95 in view of the weight of the electric gun turret. My guns were loaded but having no gunner, they were cocked to fire above the airscrew. The ailerons were pleasant, cockpit layout convenient, & the landing not difficult. The mechanic who received me was a Pole, so I had to speak with him in German! Rather odd to be compelled to use the enemy language on a R.A.F. aerodrome since he could not speak English or French, nor I Polish.

I had a rough ride low over the Pennines to catch the Anson at Shawbury. Remembering how "tender" the Battle is in a high wind, I had phoned for mechanics to come out when I landed & sit on my tail. That kept it down. I managed to do a nice landing on the wheels in spite of the gale. The Anson had a ground speed of 202 m.p.h. going home!

13 Oct 1940

I flew a Spit to Cosford in a mist from Castle Bromwich along the railway to collect my first Lysander. It was just like climbing up a tree, clambering monkey-like up round the port leg to reach the cockpit. The angle of climb most impressive, but a thoroughly unpleasant machine to fly. Very heavy on the controls, and quite unstable fore and aft in spite of trimming the elevator most carefully.

Approaching at 75, with the automatic slots & flaps open, the landing was easy enough.

But my taxi Anson had already left Weston Zoyland; so I phoned our section at Bristol and Capt. Horsey made a special trip in an Anson to get me. Very decent of him.

I was upset by his tragic death some months later. After carrying untold thousands of passengers during his twenty years with Imperial Airways, he was killed in ferrying an American single seater – which caught fire at low altitude.

24 October 1940

Posted to the school for the twin conversion course Capt. Neill thought my 300 hours somewhat few for the big stuff. But he never once touched the controls while he was aboard the Blenheim with me.

To begin with I found the controls very heavy in steep turns, but the machine was extremely stable & could be trimmed to a nicety. Surprisingly free of vice, easy to take off & remarkably simple to land. The worst

part of an otherwise excellent aircraft, is the cockpit layout. It seems that all the important controls are behind you! Capt. Neill sent me solo in 2½ hours, having demonstrated single engine approaches.

The principal point to watch was to make a sufficiently low approach, and not faster than 85, in order to have enough landing run after the touchdown. Such a heavy machine (4½ tons) naturally runs a long way. For the first time, I was shown single engine approaches. Found it not too difficult provided one is careful to overshoot – since no one can recover from a slow approach if undershooting. The good engine overcomes the power of the rudder at less than 120m.p.h. For this single engined work, the rudder trimming tab is much better than a spring loaded trimmer as on the Oxford. (a) Because it is more quickly applied (b) Its effect disappears as the throttle is closed and the speed dies down for the touch down.

27 Oct 1940

Delivered my first Oxford to Oxford in a mist. Thinking my Puss Moth taxi might turn back, I flew just behind him at 95 m.p.h. with 20° flap down. Coming in to land in very heavy rain, both engines stopped when I throttled back. Fortunately, I was using engines right down to the ground & had already crossed the hedge. By when greater luck, the landing was perfect – my best ever in an Oxford.

28 October 1940

For the first time I had engine trouble with a brand new Rolls Royce Merlin III in a Spitfire II. It was for Wolverhampton and started to misfire near Evesham. So I went into “Rich” but fog beyond Droitwich decided me to turn back to Little Rissington – since it was obviously unwise to fly low with the engine giving trouble. Before I got there, its steady roar was interrupted four times momentarily in spite of my changing the revs. & boost. So I was glad to put down safely.

They found nothing wrong when they inspected it, so so I duly delivered it next day without further trouble – and brought another new Spit to L. Riss from Castle Bromwich.

Nearing L.Riss at 300mph (cruising revs & boost but losing height). I throttled back about 5 miles before the aerodrome & was still going too fast to put the wheels down when I got there.

2 Nov 1940

After a day in bed with a heavy cold, I thought I was fit to fly and did a Hurricane II with two speed supercharger to Hullavington. But my high temperature returned, and I was perspiring profusely & felt very unwell flying a Puss moth home, with my taxi “stooge” in the back. I must have used 30 paper hankies blowing my poor old nose. It must have looked like a leaflet raid on Germany!

4 Nov 1940

I was already to take off from Brooklands in a Hurricane, when the balloon they’d pulled down to let me out – went up. Air Raid. So I stopped the engine & went for a smoke. At the “All Clear” the mechanic started her up, & I took off without further delay. But at White Waltham, I could not get the green light which indicates undercarriage locked down. After repeated attempts, I was still unsuccessful, so I came in, thinking there was a fifty fifty chance that the legs would fold up. I was relieved when they didn’t. Subsequently I found that the mechanic at Brooklands had turned the switch off – this shuts off only the green – not the red “wheels up” – so I had not suspected the switch off!

5 Nov 1940

Two Spits today. The second was a “priority” job to Hornchurch, where I’d not been before. My Puss Moth taxi was delayed getting away & arrived after sunset, so we were stuck for the night in the Officers Mess at his important fighter station. It was very impressive to see a squadron take off in the gloom of dusk over the

Thames Estuary – and subsequently return landing by flights of three, lights on. Our spit made a lovely victory roll from above the hangars.

It was a windy night so we picketed our Puss down carefully. During the night, the Guy Fawkes night was celebrated by a battery of 4.5inch A.A. guns going to action about 300 yards from my room in the Mess. But I soon slept again, being very tired.

Next morning, we had to wait till noon for the weather to clear somewhat but got away & ran into better weather in the high wind after passing the Epping Forest.

8 Nov 1940

After leading a wild American (from Texas) in another Oxford to Leicester, I did a taxi job in a Fairchild 24 to Biggin Hill. It was a pleasant change to fly this light & dainty American which is comparable with our Puss Moth – but has flaps, electric starter & does not rattle when taxiing.

[From this point starts the transcript of the Daily Diary in real time](#)

The diary had best begin with Monday Nov 11.

11 Nov. 1940

Another Armistice day. How different from the others. For me it used to mean a service in the School Chapel. Then later a break in the business day, while all London stood bareheaded in the foggy streets and church clocks boomed the hour of silence.

This year one thought scarcely a minute of all who fell last time and hurried to get on with this war. I bought my Poppy on the tarmac.

My orders are to take a Hurricane from Brooklands to Prestwick. Which did not please me because I would not get home to Gladys at least until next day. However I would have a good try. What a pity the Hurricane was not at White Waltham. But fortunately the weather looked good, and the taxi flew us into Brooklands – first time in through the balloons, which was at least an hour quicker than by road.

I took off at 11am. but this year there was no Silence. The anti aircraft fire was puffing white towards the East and I wanted to get going before the corridor through the balloons was closed. Besides I feel safer in the air than sitting on the ground at a military target.

The engine was a Merlin XX with 2 speed blower – a type I had not flown on a long trip before. So I asked for consumption figures to see whether run could be made non stop. I was promised 3 hours range in "weak" at 2200 revs +1 boost.

The run was very easy up to Chester but a bit hazy through the Liverpool corridor. Definitely thick north of the town so I turned left for the coast & hit Southport on the nose. Feeling pleased with the navigation so far, I was chagrined to find my mixture lever has been left in "Rich". So on to Solway Firth, I decided to land and refuel because the weather looked poor ahead, and it was raining fairly hard. 1½ hours flying 1½ to get petrol. Weather getting worse, so crept round the coast in the rain, flaps 10° down, at 160 mph. Went along

the coast road north from Stranraer, a run Gladys & I enjoyed when the green Riley was new – about 1933 or 1934. Total flying 2¼ hours for something over 400 miles.

The weather being so wet & windy, and only a Moth offered to go back in I decided to stay overnight & hope for better things in the morning.

12th Nov 1940

A lucky day began with an Oxford being available to take South. Acted as navigator to Capt. White who expected to continue by train if the weather stopped us, leaving me to bring the machine on later. But the visibility improved all the way until we found a gale blowing at White Waltham which we reached in two hours. All single engined flying had been washed out, but they gave me a Hurricane to Shawbury. Only 50 gall of 100 octane petrol in it, but knowing visibility to be good I was able to get there in 40 mins without stopping on the way for fuel. Anson taxi back ground speed 202 mph.

13 Nov 1940

This was another day which permitted a lot of flying. Keith Jopp (who has lost one hand) & I were given the job of clearing Spitfires from Cowley with our own personal taxi (Stinson) to follow us about. So we managed to shift three each. Congrats. from the C.O. One to Turnhill, one to L. Rissington and the last one to W. Waltham at Sunset with mist in all the valleys.

The Stinson is just like a brick inside. Full of decorative hardware and knick knacks. And she feels like a Yank car – soft & floppy. But the engine pops off at the touch of the starter. The trimming handle in the roof when wound fully back works the flaps – An unpleasant arrangement. A poor compass & airspeed indicator reading 20 – 30 mph. slow. Very steep descent flaps on. Poor view to starboard taxiing.

But she did serve to remind me how accustomed I had become to high power. Because there seemed to be negligible acceleration on the takeoff. Yet once upon a time (not so long ago) I would have thought it quite impressive. But now it seems as leisurely and underpowered as a horse and trap. And what a poor climb! Yet doubtless as good as a moth. For our taxi work a useful & practical machine – but I wonder whether anything under 1000 hp will feel quick to me again? Probably it will if I don't fly for a long interval. But at present the Spitfire I with 1030 hp seems slowish on the getaway after a few runs in Spitfire II with 1250.

In cruising conditions, the difference is not so marked of course. Spit I does about 240 at 2200 +1. Hurricane indicates 220 at 2200 +1.

14-15 Nov 1940

2 days leave. Antifreeze in Riley. Newsy letter from M Griffiths, Ped, & B. Batchelor all telling of heavy air raid damage. Sel writes his first letter in the Army. "Any sausage in a shop must feel more of a public responsibility than I do, beardless & be- battle – dressed, in boots a ton each". "Most of the fellows are of the type who, having nothing to say spend all day saying it".

After a bath so hospitably & regularly provided by Dentist good Mr Jolley, we talked of planes tanks & dentistry. He thinks it impossible to be a good dentist & a good anaesthetist at the same time:- shall consider this advice on future occasions when having gas, shall ask for anaesthetist and not expect dentist to do both jobs.

Heavy air raid last night on Coventry. BBC say "1000 casualties". Cathedral (14th century) destroyed.

16 Nov 1940

The A.T.A. has often seemed to me to resemble a lunatic asylum populated by remarkably sane looking maniacs. But this morning the organisation was more at sixes & sevens than ever.

Ellam, second in command and a most lovable fellow, unable to stand it any longer, had offered his resignation, Wills, our C.O. duly demanded help in the office before he has a breakdown.

Brads suddenly stopped me & asked how I would like to be flying instructor in navigation at the school. I said my only doubt was whether I could get on with the Chief Instructor when so many others had failed. I indicated that, though a peace loving man, I could not stand Prussianism from Mac Mcmillan or anybody else – and that in fact, we were fighting the war against that sort of thing. Brads agreed, & pointed out that the job would keep me at W. Waltham; so I said I'd be glad to try if he wanted me to.

He then had a private chat with Mac & later I was ushered in. Brads must have said something flattering about me because Mac was most courteous.

I said I should like to try but hoped I would not be confined to this work indefinitely.

Mac implied that if my work was good they would wish to retain me on instruction but that he would not keep me against my will. Moreover, I would be free to do an occasional ferry job if I wished.

So Brads went with me to Wills to obtain my release from ferrying, but Wills would not consent, saying he wished to retain reliable pilots to cope with the work of the section. So Brads consented to a “standstill” arrangement for 48 hours until our Chief D'Erlanger had been consulted.

So the decision is out of my hands now. If I become an instructor, it will be a change and I should get home more regularly at nights. And a certain amount of prestige goes with the job. Yet I suspect the time will come when I may want to get back to the exciting job of ferrying different machines every day in every direction.

After all this, I flew an Oxford down to S.Wales going along behind the balloons at Cardiff & Newport, for the first time. No longer can we make the easy approach down the Bristol Channel, but must take to the mountains inland. Visibility was good, ceiling about 1500 feet, so it was not difficult under the prevailing conditions.

So much rain has fallen recently that large areas of the country are flooded & many aerodromes unserviceable. Those dromes that can be used are unpleasantly muddy.

I was amazed to see a light beam wind blow the Anson sideways when taxiing slowly, with the windward engine fully opened. This broadside skid illustrates what what an excellent lubricant wet grass is for smooth tyres.

Last night a light was left on at our aerodrome & soon after dark, the Hun dropped a bomb within 100 yards. The 30 foot crater is about 20 yards from the G.W.R main line.

Sunday 17 Nov 1940

After luncheon, I was given a personal taxi (Fairchild) & orders to take a Defiant from Brize Norton to Southend. The B.B.C. had just announced “ 10 Huns shot down today” so I was careful to take a signal pistol on my trip to the Thames Estuary.

We managed to land at Brize Norton although it was very wet – pools of water all over it & the ground very soft. They thought it might be ok to take a Defiant off. A mechanic picked up my pistol carelessly and was very surprised when it fired “ a double green” – fortunately without damage to men or machine.

This was only my second flight in a Defiant. The take off was o.k. in spite of a continuous skid to port on the slippery ground. As expected the engine got very hot at 2600 +2. Oil 80° c Water 100° c Airspeed about

200. A trifle unstable laterally. Excellent view was useful in London's smoke over Epping forest. Cockpit layout of controls very convenient. Large Compass. Novelty: the stick rises & falls with the seat.

Southend aerodrome being quite flat & not too wet, I made the approach at 100 flaps down. I think 95 is quite enough. Hold off a little difficult, looking into setting sun. Home in 40 mins by Fairchild.

Felt better today: the cold which has bothered me for a fortnight seems to be on the mend. It has lasted overlong, but it is my first since joining A.T.A. – over 6 months; I think a second run for me.

Poor little De Lob has been asked to resign. He was a bundle of nerves, and took to drink.* As a result, too many accidents with Moths. Somebody asked about his "moth-ball" factory! After landing in the Hebrides a few months ago - when his destination was Inverness – he was given a navigation course.

Recently he landed a Puss Moth in a field & crashed through two hedges trying to take off. At the subsequent inquiry, he admitted that he had ample petrol & good enough weather. Being asked therefore why he landed in a field, he replied "my E.T.A. had expired."

*In the Mess, he would say "Bring me a tray of gins"

The following notice to pilots has been pinned up in the W.C.

Fuel System

After jettisoning contents of tanker, see that selector lever is in the fully "off" position. "UP" to avoid waste. ~~Further drainage~~

Before lowering undercarriage, see that flap is down.

Monday 18 Nov 1940

All flying washed out today by heavy rain & thick mist. Brads informed me that I shall be transferred to the work of instructing as from tomorrow. Naturally I said I would do my best. I wonder how I shall like it & whether I can manage to do a ferry trip for a change now and then.

Excellent news tells of Greeks thrusting back the Italians.

My first day as an instructor. It was explained to me that I should have to test every pupil of the school in the air & pass him out for cross country. The theory is to be explained to them by the Ground Instructor (Navigation) – my colleague Mr Sloper – a master mariner who has flown once. A very pleasant chap but somewhat on strange ground at present. I think we shall be able to work together very happily.

My first pupil turned out to be the holder of a Second Class Navigator's License! Which is more than I've got. I mentioned this to my chief Capt. Neill, who said nevertheless he must be tested, since there is sometimes all the difference between a practical Navigator & a Second N. My second pupil had little experience. So I spent some time lecturing him on preparing a route.

Apparently, I shall have only one day's leave per week now, and shall fly Oxfords & Ansons mostly.

One of the earliest A.T.A. pilots, who remembers my humble early efforts in ATA, is in the school for a refresher course in navigation. Imagine his astonishment (& horror) on finding I am the Professor!

Wednesday 20 Nov 1940

For the first time, I flew today as an instructor. Two pupils: Worcester Gloucester & back. Then Northampton, Bedford & back. Pupil Leahy, over – confident, know-all type. The other Roch modest & inexperienced. 3½ hours flying, with excellent visibility.

Leahy asked to land the Oxford. I refused, saying I was not his flying instructor. He replied “Oh but I am an instructor!” Afterwards, I found he had failed an instructors course in the R.A.F. I’ll try to see that he flies Moths this winter. That will cool his confidence a bit.

The other started off badly & was soon lost, but he shows progress.

The floods in the river valleys all over the country seem even more extensive today. I quite enjoyed the work, but it is quite exhausting to start with. Perhaps it will seem easier, when I have done more of it & have more apt pupils. But the weather was most helpful today – visibility about 20 miles. Even so it was necessary to concentrate all the time – whereas when flying myself, the flying is often the easiest part of the ferrying work.

Thursday 21 Nov 1940

Good weather for run to Leicester in an Oxford. Pupil Leahy lost himself in 40 miles. Took him back to track. Repeated error.

Pleasant lunch with our section at Ratcliffe & return flight with pupil Roch, inexperienced but sensible.

Second trip to S. Farnborough from W. Waltham. Leahy was 45⁰ off course immediately. Heavy rain suddenly cut visibility & circling. Leahy said “I know exactly where I am” He didn’t. I told him to turn back. I had my work cut out to get us back O.K.; but I had the comfort of knowing that W. Waltham could not be too thick yet. 3½ hours flying.

Friday 22 Nov 1940

Leahy had another try to fly 8 mins South to Farnborough in good weather. Obviously cannot map read, passed within two miles of the objective & did not see it. I brought him back from the Hog’s Back. The next leg he managed with frequent diversions.

I have therefore put in my first report on a pupil as follows:-

“Has little common sense & no air sense. Does not learn. Transferred to instructor Capt Griffiths as very nearly useless to A.T.A.

Roch did well, so I have passed him out to solo light types cross country.

This afternoon my pupil (!) Cook, 2nd Class Navigator flew me steadily to Droitwich. Apparently he has flown bombers to Germany, & I have to ok his navigation! Passed him OK to solo all types.

Pupil Flathers ex R.A.F.V.R. O.K. on map reading but not good on the time watching. O.K. until I asked him to finish his run by flying from W.W. to Farnborough. Did not observe his compass, & headed towards the balloons at Brooklands. Local mist.

Took him to S. Farnborough but he made a poor effort getting back and hit Reading first. But I think he will learn the idea quickly.

Tomorrow I have my first American pupil (with 1700 hours !) but no experience in England.

Sat 23 Nov 1940

Fog in the valley prevented us taking off before noon today. I used the time gaining the confidence of Hampton, the A.T.A. pilot (senior to me who is in for a refresher course. He was impressed to learn what could be done with a watch & an Appleyard scale. I was not altogether surprised to hear that he had never used the watch in cross country work.

Fletcher started badly in the run to Leicester but did better towards the end. The pleasant American Stewart brought us back into the sun & mist very accurately, so I immediately passed him out.

Showed them both the balloons at Cardington, Beaconsfield Langley & Brooklands.

Difficult landing the Oxford behind a Wellington straight into the sun with a dirty windscreen. Managed with one eye through the open window. Touchdown not to bad.

McMillan had a talk with Leahy & filled me in. He is going to be given a last chance & restricted to light types anyway. Perhaps he will now pull his socks up.

Young Fletcher realises his weakness & asked for help tomorrow en route. This I shall certainly give him now he knows his limitations. Up till now, I have given him full advice beforehand & afterwards; then left him to it mostly, to find out what he would do.

Excellent little lunch at Ratcliffe. 2hrs 20 flying.

Sunday 24 Nov 1940

The weather this morning was misty & we made a tour of eight aerodromes to the West. Going to Little Rissington from Hullavington the ceiling was low & the visibility less than 2 miles. So Hampton could not map read & had to rely on the D.G. and watch. Hit the objective on the nose within 30 secs. of estimated time – which was an impressive demonstration to him of the system. He is now a great believer in it.

After lunch two Americans Annibal & Stewart (passenger) saw the country to Droitwich & Gloucester; with Hampton. Visibility better. Helped Brads after collision with motorcyclist; we had dinner with him & Miss Jones & Reynolds at Compleat Angler Marlow.

Monday 25 Nov 1940

Holiday: thick fog all day. Gave the Riley much needed attention. Drained sump & gearbox; topped battery, washed body etc. Enjoyed the change of activity.

Had the great good fortune (thanks to Gladys's tact & friendship with charming Mrs Reynolds) to find a more comfortable garage for the Riley.

Tuesday 26 Nov 1940

Visibility 25 miles. Hampton & Annibal to Ratcliffe & Henlow. Passenger for the first time Mr Sloper the master mariner. His second flight; he seemed to enjoy it & the lunch at Ratcliffe. Passed Hampton out, all he lacks is confidence; he can do the job.

Then the triangle to Wroughton with another American, Bender; not very good today but most anxious to learn. A few anxious moments when we turned on the auxiliary petrol tanks. They did not fill the mains, but I knew I had enough to get home. Mechanic said this was normal; the flow to the mains is slow when the engine is running. I must check this. Passed out Annibal. He will be good.

On return, we were told that a school Moth had run out of juice & free landed safely near the aerodrome. I said "Was that Leahy?" It turned out to be so.

He admitted to me quite openly that he never thought about petrol during 2½ flying, nor when the engine stopped. I could not but think that this confirmed my opinion in my report “No air sense”. This has put paid to him and he will be fired, I’m told. It’s in his own interest & the nation’s

Very glad to hear that the motorcyclist in Brad’s accident is “comfortable” in hospital. Although it seems an odd word to apply to a man badly injured. 3¼ hours flying.

Wed 27 Nov 1940

Visibility of 20 miles made conditions too easy to judge pupil’s skill. Landed at Bristol to enquire about relatives of my brother instructors after the heavy bombing. All O.K. although the damage in the town centre is very heavy. I was told that the Grand Hotel, where I stayed a fortnight, is burnt down, and that the City has no water and no gas. One Ensign & another liner burnt out at Whitchurch. I had to avoid 6 craters on landing & then taxi around two unexploded time bombs. A couple of these went off in the town during the hour I was there.

A tough mechanic, evidently shaken by the raid told me that many people were sleeping in the hedges outside the town at night now. He had rescued a neighbouring family from a wrecked house. But all were dead except a 15 month old baby – which he has adopted.

Home by way of Bicester & Hatfield 2¼ hours flying. It seems that the more experienced the pupil, the more anxious he is to learn. For example, Mr Bender 4000 hours since 1917. I learnt from him that Stuart was the chief pilot of the Honduras Air Force.

Capt, Neill says I must not pass Hampton yet – he must have more practice. I think this is not essential, and suspect that Neill has a “down” on him. It is a pity because I am asked by Kemp to get the experienced Americans passed through quickly – and, of course, I can only cope with two men at a time.

Thursday 28 Nov 1940

North wind brought Birmingham smoke down to the Thames. Took two Americans & Hampton up to Chester & tried to get into Ringway. Passed within ½ mile of it but did not see it in the Manchester fog. Since a nomad balloon was supposed to be just South of the aerodrome, I turned away & landed at Sealand, after finding Hawarden unserviceable. Returning, visibility was about 2 miles South of Droitwich, but with a drift allowance of 5° the gyro kept us dead on course all the way.

A pilot at Ringway all day said that a crashed Hurricane in the middle was not visible from the tarmac until about noon, & then they could not see the opposite side of the aerodrome. So I’m sure it was not wise to try to get in there.

Bender passed out. He is not terribly quick, but is very thorough & experienced.

Capt. Neill chatted with me tonight & suggests that I must check up each pupil on the use of the compass, knowledge of its limitations, turning on to different courses; also the D.Gyro, and local map reading – before taking them on cross country runs. Doubtless, shall give this procedure a trial. 2¾ hours flying.

Fri 29 Nov 1940

Two new Americans Wimmer & Smith. The first from California with 500 hours & the other from Syracuse, New York with 2000 hours – a lot on Seaplanes. Since they don’t have our flat type compass over there, I spent two hours locally in the sunlit mist on the lines suggested by Capt. Neill yesterday. It was time well spent – which surprised me, considering their flying experience.

After lunch we went 1½ hours on a triangular course to Hullavington. Visibility about 2½ miles, & nil forward into the sun. Smithy was foxed by this & made a poor start. Afterwards he learn to rely on the stopwatch to pick up good benchmarks.

When we hit our objective on the nose, within a minute of estimated time, he said enthusiastically “Well, doggone ! I’ll swap that little watch for all the radios in America!”

Several ferry pilots came back today & Neill said the weather was no good for teaching cross country because it was not possible to map read, But I know that it provided a first class demonstration of the necessity for using the watch & preparing the course beforehand. And one demonstration is worth a lot of preaching. It impresses the pupils (in a way they won’t forget) with the value of the method.

For example, Bender (whom I had passed out yesterday) got to Bristol & back solo today in a Battle OK, and seemed worried that he was one minute late at a midway check point ! He asked me whether it was right for him to open the throttle then to make up time !

Did 20 mins. in a Moth later, to pass out Annibal on the compass. By jove, it did seem slow & safe! Except that I was always looking behind too see if we were going to be bumped up the tail by a Blenheim coming in to land. The only way to appreciate the speed of the military fighter is to ride in an 80 mile an hour machine. It seems you could go as quickly on a bicycle – & it wobbles & dances just the same. In spite of the wind blowing round you in the open cockpit – it still seems slow. 3½ flying.

30 November 1940

Fog in the valley persisted until after lunch today – and it was very cold, although no wind.

I was glad of a morning to arrange my maps & rule courses; to discuss with Mr Sloper our method of working. In future, he will arrange for the pupils to prepare one of the useful courses so that they are all ready for me to crack off without delay.

This afternoon I did 45 mins in a Magister, a type I have not been in for a long while. I like it better than the Tiger Moth. My pupil Rogers was turned down by the R.A.F. on night flying. He seems a bit dense to me because he took a long while to decide which way to turn from North to fly East. After all, he claims 100 hours though only one cross country in that time.

London had a heavy air raid last night. The Germans claim to have dropped 400 tons of H.E. as well as 36000 incendiary bombs. Perhaps – and perhaps not.

Sunday 1st Dec 1940

Worse fog today so we washed out after lunch. I came home & had an hour’s walk with Len. Spent the morning “hangar flying” with two Americans. Gave an hour’s talk on dead reckoning to an A.T.A. taxi pilot who asked for it – and seemed to enjoy it. Noticed ice ½ thick on a nearby pond.

Monday 2nd Dec 1940

One day’s leave enabled me to shift my stuff to the new garage, refuel the Riley, adjust gear pedal , horns etc.

Doc Kipping was mightily thrilled to drive Riley. He was amazed by the engine power & road holding. I must try to give him a flight after the war.

Tuesday 3rd Dec 1940

Mist stopped flying this morning. After lunch, it lifted a bit but rain set in. The Met. people did not think much of it in the Midlands. But I had a try with an Oxford. The pupils did not like it over the hills with 100

foot ceiling & 1½ miles visibility, so we came back after half an hour. After all, they would not go off solo under such conditions so there was not much point in carrying on. The Ferry Pool did not fly, but the School did circuits & bumps with single engine types.

Wednesday 4th Dec 1940

¹⁰/₁₀ at 500 feet & visibility about 2 miles stopped the ferry work before lunch. I did an hour of compass work locally in a moth with dense Rogers. A quiet, shy lad. After lunch, had Coles & Gregg in the Oxford locally and passed them out on Compass & Gyro.

Was worried by a knocking sound in the Riley gearbox at 30 in 3rd, 45 in top. Len Gibbs quickly traced it to the combing over the gearbox & quickly put it right.

Thursday 5th Dec 1940

Stormy West wind blew the fog away today. So succeeded in passing out Wimmer & Smith on a run to Ratcliffe & back.

It was an interesting demonstration of the of the temperamental nature of the Oxford's landing characteristics to notice that a short approach at 80 used a bit more of the field than usual. I found this was caused by the slow running settings of the engines being faster than usual. This in turn meant that after flattening out & getting the machine in landing attitude, it was possible to snap the throttles shut & the machine subsided gently, instead of dropping like a brick, as would be non characteristic. But after the touch down she ran unduly far.

In regard to the take off, Capt. Neill confirms what I have found i.e to avoid a swing to the right, one must keep the tail down till about 20 – 30mph, and open the starboard throttle ahead of the port, & use left rudder. Sometimes, indeed more often than not, she will still swing right; so the port throttle is brought back until further acceleration enables it to be fully opened. By contrast, the Blenheim with double the power, has no vices on take off or landing. In fact, approaching at 85, one can close the throttles completely on nearing the ground, and then flatten out and land. The same applies to the Anson.

But I like flying the Oxford since it keeps my hand & eye well in, for the high performance machines.

It was misty at Leicester (vis. About 2 miles) and Smith got 30° off course in 20 miles, through not steering straight, looking at his maps instead of his gyro, & having his map sheets confused & badly folded. So I had to Bradshaw him back & we made a fresh start.

I then passed out an American airline co-pilot Jacques on compass, gyro & local map reading. Passengers Rogers & Gregg map reading. 3 hrs 20 mins flying.

Fri 6th Dec 1940

A full gale today stopped single engine flying & school solo cross country. The petrol tanker broke down so I flew an Oxford over to S. Farnborough but was unable to land for juice because the aerodrome was showing the unserviceable signal. So brought my three passengers back. They were all Moth pilots and had not flown in 60 mph wind at 2000 ft before. Neither had I flown an Oxford in a gale. They looked very relieved after I had luckily made a good landing. Later, I learned that a tram had blown over at Blackpool.

Having petrol after lunch, I did the run to Droitwich with James an oldish English Moth pilot, and Allsop, 3000 hour American. Rogers map reading ground speed 90 going up and 192 coming back Air speed 130 – 140. Another good heading in the boisterous wind with 60° flap.

James & Rogers felt a bit sick with the bumps but Rogers said he had learnt more in one day than all his time in the R.A.F.

The A.T.A. pilot Hampton failed his test with Neill yesterday. They have a mutual aversion. He was up in front of Mac, Neil, & Brads today. Mac tried to throw him out. But Brads pointed out his unblemished record. Afterwards Brads had a word with me & I assured him that Hampton was O.K. flying with me. Fortunately there is no question of his being fired, since Brads quite agreed. Hampton thanked me.

I think today that my three professional colleagues are beginning to accept me into their circle, for they were good naturedly pulling my leg today – in other words, not being so formally polite.

On the radio tonight, the B.B.C. broadcast a talk by a Polish doctor who left Warsaw only 2 months ago. His facts about the treatment of the Poles by the Huns was appalling. 1½ million Poles were deported in cattle trucks in frosts of 55° from West Poland to Central Poland. All their property given to Huns. In Warsaw & Central Poland many die from starvation & cold. The Doc had had ¾ lb of meat in 6 months. There is only bread potatoes, & oatmeal. But at seven shops in Warsaw, Huns can buy eggs, butter & everything they want.

Sat 7 Dec 1940

Three hours in the Oxford today. Passed out Allsop, The American relative of our British beer family. Brize Norton could supply only 100 octane so went over to a field called Akeman Street (after the Roman Road) & took on 120 gallons.

Misty in the late afternoon; Coles made three poor starts on a run to Bicester. A little mist soon sorts out the sheep from the goats.

I notice that the pupils of little experience, become much more anxious to learn after a trip in poor visibility. The most experienced men are the most grateful for everything one is able to demonstrate to them.

Saw the result of a nasty accident at Hullavington today. One Audax landed on top of another, killing the pilot underneath.

It was at this aerodrome this week that an Audax taxied into our Fairchild & bit off the tail. The Audax had an instructor on board.

Sunday 8 Dec 1940

Strong North wind gave good visibility today and continuous sunshine. Did 50 minutes locally this morning & then Liverpool & back this afternoon stopping at Shawbury & Wolverhampton. Came back in 1 hour flying time – but 1¾ going up.

Passed out James for light types; & Jaques – although I have not seen him perform in thick weather, but he is obviously experienced.

As I crossed the hedge at Shawbury, another Oxford started its takeoff underneath me, so I was compelled to go round again.

Smoky at Speke, but it is interesting to notice several of the new Curtiss Tomahawks there. This is the American imitator of the Spit, with the Allison liquid cooled engine. I am told it is as fast as the standard Spit, but I doubt it equals the Spit II. In any case, it has only 4 guns.

The E.T.A. from Droitwich was 27 mins; Dr Whitechurch observed that we arrived at 27 mins plus 3 seconds. So I think he will be interested in the watch & ground speed instruction. 3½ hours flying today.

Tonight we had the sad “goodbye” to say to Charles Taylor who is called up this week. He leaves Eileen & Michael here, and we shall move his furniture & rugs into Burbage Road next Saturday.

Monday 9 Dec 1940

Leave. A quiet day. Had all wheels off the Riley to give her a good wash. Then of course, it rained – and I got a puncture !

Tuesday 10 Dec 1940

For the first time in my experience, my carburettors iced up today. Both engines began to lose power just when I was temporarily lost – for the first time in all my wartime flying.

This happened after an easy run up to Leicester in a 40 m.p.h. West wind with Gregg & Rogers. We were 5 seconds later than our estimate of 42 mins ! I joked that this was because of inaccurate steering. So I did not anticipate any unusual difficulty on the way back. At Bedford, we were within 400yds of the track. The American decided to depart from his track to give the Cardington balloons a wide berth. This would have been o.k. but just at that moment we ran into a heavy rainstorm.

Paying too much attention to map reading, & not enough to the gyro, we missed our single line railway, found a double track & followed it (at about 200 feet) south into a large town, in a hailstorm. Then the engines began to lose power, so I turned on the carburettor heat & aimed N.W. out of the storm up a Roman Road.

Map reading suggested that we were approaching Biggleswade but I was not satisfied that it was so, so I decided to aim SW for the Chilterns & run along them to the Thames Gap & so home. The Gap arrived sooner than I expected but I had a shock when I glanced at my watch & found it 15 minutes to sunset.

The engines were getting no worse, so I refrained from landing at Benson and came home along the G.W.R. like a bat out of hell with the wind behind. At White Waltham, it was raining so hard we could not see the windsock, & being so late I could not wait for the storm to pass, so I opened the window & came in. The Port engine was not responsive but we pulled off a good landing on the wheels. Taxiing downwind we did about 200 yards in a steady skid 45° to starboard.

The pupils said they had learnt a lot. So had I! Afterwards we traced our route on the map & found that the first large town was Luton, & the suspected Biggleswade was Bletchley.

This made 4hrs 10mins flying today; I did a pleasant 2 hour trip in the morning to Hullavington etc.

Tested some amber-pink sunglasses & found them good, so I shall have a pair of specs made for flying into the sun - & for general use in summer.

It was interesting to prove that you can get 4 hour range out of the Oxford at -1½ boost in “Weak” A.S.I. 130 – 140 – and have a safe margin of about an hour’s juice left. Total Capacity is 150 gallons.

Wed 11 December 1940

A very satisfactory day. Ratcliffe & back in weather fine at first then heavy rain & smoke in the North, haze in the South. Doc. Whitehurst shows great progress, & I offered to pass him out, but he asked for another run. My slow pupil Rogers was tested by Griffiths, did very well & passed out.

I asked George Kemp to check me out on Oxford flying one engine shut off. I did one circuit & landed very safely, cutting the engine at 1000 ft. So I felt satisfied & so did he, since the undercarriage pump is on the starboard engine, we helped the wheels down on the hand pump. 2¾ hours flying.

This evening my eyes were tested by Mr Viner F.R.C.S. Left eye unchanged in ten years, but right eye slightly worse. So shall have right lens changed in my ordinary & reading specs. He says this will not affect my judgement of distance, or weaken the eye by being fully corrected. It is possible that my right eye has

not depreciated but that my specs were deliberately under corrected. Mr Viner does not agree with this principle & recommends full correction. Fee £2.2.0

Sherwood has sent me his cheque for £20 – balance owing on the Riley. He has done nearly 2000 miles & is very pleased with her.

Thurs 12 Dec 1940

Heavy hoar frost on the Oxford wings this morning. This might have a serious effect on the takeoff so I turned her tail to the sun until it melted. Landed at Boscombe Down for petrol & ground tail wheel punctured. No tube available so lifted her tail against the brakes & took off. After a 2 hour run to Bristol & Oxford, I landed at home on the wheels & put the stick steadily forward which kept the tail up until the speed was down to about 15 m.p.h. It was a very smooth & comfortable way of landing but it prolongs the run & I should not like to use the brakes firmly with the stick forward.

On return, I was told that the tyre was flat when I left, but it was noticed too late to stop me.

At Boscombe Down I saw my first Handley Page Halifax. With four Merlins at take-off boost, she was an impressive sight as she dived for a run across the aerodrome leaving four black smoke trails. Also saw a Short Stirling take-off & land for the first time. Such a tall undercart must need getting used to.

Friday 13th Dec 1940

Fog stopped all flying today. An hour's driving to work with screen open the fog froze on it. So I froze instead.

Gladys hitch hiked to London to prepare for moving our furniture to 168 tomorrow. She must have had a miserable journey. B.B.C. working ok tonight so I hope that means no bombers over London.

I heard a rumour today that the other Watson in A.T.A. (JCVK) – who resigned – has joined Hawker's as a test pilot. If true, it is extraordinary to think he has got the job that was offered me. I mentioned it to Brads – and said I wondered if Hawker's knew which Watson they were getting!

Ordered my splinterless tinted flying specs today – expensive £5-11-0 – but worth it I think.

Sat 14th Dec 1940

Gladys arrived home in the rain & blackout this evening tired but happy – having shifted Charles furniture & ours to Burbage road in sunshine.

I had my first long winter trip in an open machine today – and it was bad, half way to Bristol in a Magister with pupil Coles, the ceiling came down & so did the rain. A strong beam wind caused most violent air conditions flying low over the hills. After two hours of it, I was so cold & felt so sick, that I was very glad to land – although so numb that it was difficult to do a good one. That finished flying for the day at White Waltham, as the weather closed in after lunch.

Sunday 15th Dec 1940

For the first time in my experience, I had an engine lose power on the take-off today. It was the starboard engine of the Oxford. I noticed she was a bit slow on the take off and on the climb the engines were badly out of synchronisation. When I levelled off, to get 1800 revs on each I had full throttle & +1 boost on starboard & half throttle & -2 boost on the port. So I completed the circuit & landed. We found two plugs had oiled up in the same cylinder.

Afterwards I did 3 hours on her with American Gregg & ex – R.A.F. Melville. Gave Mr. Sloper his second ride with me – to Hullavington. He has not seen any bad weather yet. The visibility was excellent.

Had an hour's chat with Capt. Neill who approved my navigation notes with minor amendments. He agrees that in many cases it will need more flying time to achieve the standard we desire.

Monday 16th Dec 1940

Attended the dentist Mr Jollye today – he polished my teeth up a bit. Looked in at the office & did some Christmas shopping. Refuelled & checked air, oil & water in Riley. Bathed; & saw a good flick "Pride & Prejudice" Saw the wreck of Mr Hunt's car; he rolled it over & wrote it off on the ice the other morning. Remarkable no one was hurt. Very glad to hear Del & Pat have found a house at Sidcup – and that we shall get Christmas & Boxing Day off. This will give us the chance to see Mum & Dad.

Tuesday 17 Dec 1940

This morning I took two Polish fighter pilots Imiela & Paszkowski for an hour in the Oxford & tried to convey in "pidgin" English the mysteries of Northerly Turning Error & acceleration error on East to West. And followed that up with the directional gyro.

The first man did well, the second not so well. So later. I had another go with the interpreter Kownachi an electrical engineer. We then tried a cross country in the mist, but it got too thick for arguments in Polish. So I will have another run when we have more chance to see where they are taking me.

There was an hour's delay after my first take off this morning. The same two plugs oiled up & we lost about 100 revs on the starboard motor.

Wednesday 18 – 12 – 40

Thick fog. The A.T.A. washed out after lunch, but it cleared a good deal by 3.30 so we got cracking locally – with some of the D.H. School Moths getting in our way.

Just as it was clearing an Oxford came in from Portsmouth, too high & too fast, sat down about half way across the aerodrome. He was late in realising that he could not stop in time, & so was late in opening up again. I doubted whether he would clear the telegraph wires but he did by less than a foot! The CO & Brads saw it & were as shaken as all other spectators. The pilot must have been scared, for he failed to get his wheels up promptly, & when he came in the next time, left his flaps down taxiing. Capt. Griffiths told me a yarn about a pre-war run at night from Switzerland in an Albatross with a full load of passengers. They had dodged round storms most of the way, but there was one enormous cumulo- nimbus cloud which they could not avoid so they went into it at 12,000 feet. Immediately they were blown up at 2000 feet a minute in spite of cutting the motors & putting the nose down. They popped out at 17,000 feet like a cork from a bottle! I thought how fortunate that it was an upward current & not a down current. (Haircut today)

Thursday 19 Dec 1940

Capt Neill again indicated that our school will be greatly enlarged to produce more & more pilots. Apparently we shall have to cope with people of very little experience – 20 hours or so. He is talking in terms of having perhaps a couple of dozen instructors – but where we shall get them from I don't know.

The De Havilland School started to leave White Waltham for Peterborough today. So we have not only ousted them from our aerodrome, but we have shifted the aeroplanes for them. It is an interesting sequel to their attempt to throw us out.

This morning I did compass & gyro with Count Zichy (A.T.A. pilot – Hungarian father) & ex R.A.F. Nettleton. This afternoon I intended to fly to Wolverhampton but ex- RAF Phelps could not cope with the

Oxford in the mist north of Oxford – visibility about 2 miles. So I brought him back, & we did compass & gyro locally. Apparently he was fired by the R.A.F. for colliding in a Harvard, with a Hampden bomber in a cloud. The Harvard went into a spin and he baled out at 1.200 feet. But I doubt whether he will be much good to us; he does not seem bright enough.

For the second time in a week, a man said to me today that he had learnt more in a month with A.T.A. than in 3½ years with the R.A.F. I pointed out that we did not have to spend time on bombing & shooting; we were able to concentrate on flying. 3 hours 5 mins flying today.

Saturday 21 Dec 1940

The great event today was that the chief of the School stopped me & said “You are doing good work”. Coming from MacMillan, I understand that is high praise. He went on to ask how I enjoyed the work, & said that if I wanted a change of aircraft, I was welcome to do a ferry job occasionally. Very decent of him.

I explained that these short winter days, it was difficult to keep up with the work, but that when time permitted I should be glad to take advantage of his offer.

Quite a long trip today in poor visibility 3 – 4 miles mostly but less in places. Bristol – Wolverhampton – Bristol & home. 3½ hours altogether; about 400 miles.

Curious defect in port petrol system; we noticed that it went down very rapidly from 20 but the main tank was dry & there is no gauge on the auxiliary. Naturally, I lost no time in making for Aston Down under the circumstances.

When full up with 150 gallons, it's a solemn thought that the Oxford is lifting over half a ton of petrol – nearly 5 hours range at -2 boost in weak.

My two pupils Melville & Phelps, I passed out but only just, I reported accordingly, indicating that they are by no means good.

My “Spitfire” article appeared in the “Right Car” today & looked good to me. Income tax will be deducted from my salary in future – over £3 per week.

Sunday 22 Dec 1940

Bitterly cold east wind froze the aerodrome mud solid today – making it hard & clean to walk on. I wore my leather coat for the first time this winter & was glad of it.

No pupil & no machine available before lunch, but I did 1½ hours in the Oxford later.

Monday 23.12.40

Did a test flight this morning on an overhauled Oxford. Starboard engine too rich at low boost. The mechanic responsible & my colleague Sloper came with me & were quite thrilled when I let them handle the controls in the air.

Weather the same as yesterday. Did a run to Droitwich & Gloucester with American Boyd (a flying boat skipper) & Hungarian Zichy. 2½ hours in all. Managed to get home in time to prepare the Riley for the Christmas Day run to Mum & Dad at Polegate.

Tuesday 24.12.40

Christmas Eve. A very pleasant day's flying. 1,600 hp to Benson. 1,030 hp back. Then 130 hp locally. In other words, I flew a long-nosed Blenheim for the first time, & brought back a Battle, then did an hour on a Moth. Three very good aeroplanes – all easier to land than the Oxford – although the Blenheim needs more room for her landing run. She cruises at 200 m.p.h. effortlessly. Bring her in at 90 (5 m.p.h. less than the Mark I).

I was pleased to be able to get the Battle for Capt Neill to deliver on his way home. Otherwise, I might have had a dirty job getting him there & myself back. The weather was very bad west of Birmingham & might get worse as I returned. It would have been a disappointment to get stuck out in the Midlands on Christmas Eve – with Mum & Dad expecting us tomorrow.

Christmas

Wed & Thursday 25 – 26 Dec 1940

We enjoyed the journey to Polegate & back in the new Riley. She went down effortlessly in 2¼ hrs & came back in 2 hrs 20. The distance is just under 90 miles so the average was 40m.p.h. going down. 35 in the 1st hour, 40 in the second, and 15 miles in the last 15 minutes of lovely concrete road. Roads were wet going but dry coming back. Very little traffic indeed.

Mum & Dad both looked well, & we greatly enjoyed a few quiet hours with them. Pop drove the Riley and liked it, & was also interested in this Diary which he referred to as my “Diarrochia”

For the first time I remember we did not have turkey for christmas dinner; very sensibly in view of the price which is about £3-10 for a decent bird.

A letter arrived from Uncle Tom at Southport saying that they had to vacate their house on Saturday night when a nine foot landmine descended by parachute in the garden opposite. However it did not explode & was safely removed so they were able to return the next day.

Friday 27.12.40

Mist compelled me to do an hour of local compass work in a Moth. My big leather coat proved warmer than a Sidcot outer. In the afternoon took two pupils & a passenger on business to No 41 Group at Andover. Local compass work at Andover while waiting for our passengers.

Saturday 28.12.40

Very pleased today that Capt. Neill spoke to Macmillan about my request for a Whitney Straight – and they will try to get it. This cabin side by side two seater should prove very suitable for cross country instruction of the ab initio pilots we shall be having in future – those who cannot cope with the Oxford.

Nearly three hours today in the Oxford in misty conditions. When we found Hullavington (within a minute of our estimated time), we were in a patch of fog & could not see the hangars from the opposite edge of the aerodrome. Near Oxford we saw high above us the white “smoke trails” of a dog fight.

Capt. Neill is somewhat reserved (reads the “Times”), & not inclined to overstate anything to I was flattered to overhear him remark “ I’ve got a lot of time for the Professor – the way he flies round the country in this weather”. This phrase “to have time for” is R.A.F. slang & self-explanatory. Popular slang here at present “to cope”; “to be browned off” “Nits” – people who can’t fly. “ to get into a flap” – hence “ Don’t flap”

Sunday 29.12.40

Excellent flying weather permitted an early start so I exceeded four hours instruction in one day for the first time. Passed out two bright boys – Birkett & Nettleton – although both were flying so close to their track they did not see their objective; however, both returned to it without delay.

My third pupil was the autogyro agent for S. Africa – 1600 hours 200 at night; but very slow to learn although anxious to do so.

Monday 30.12.40

Felt in need of this day's leave. Did the Riley sump, plugs etc. Met Doc. Hilmore by chance at the office. Gladys helped me to prepare our financial Balance sheet of the year. All went well with this until we tried to find out how much we had gained or lost on the year. Then we got four different answers! After a couple of hours we reduced this to two, & gave it up until we get an opinion from the Bank.

New Years Eve Tuesday 31.12.40

The severe incendiary raid on the City on Saturday apparently destroyed the Guildhall, the Press Club, Central Telegraph Office & many historical churches etc. Tonight, the Home Secretary announced compulsory service for “fire bomb fighters” & fire watchers.

No flying today – rain all day, mist & low cloud. Riley gear lever came off in my hand – but a new lighter spring was promptly made & fitted by mechanic at aerodrome.

New Year's Day 1 Jan 1940*
(* Should be 1941)

The Autogyro agent for S.Africa took me to Ratcliffe (Leicester) today in brilliant if chilly weather. Then an awful man, Payne, excitable & over confident brought us back making a poor show of it. Another trip in the afternoon.

Thursday 2 Jan 1940*

I saw my first nomad balloon today – at Droitwich where I least expected it. We were flying low in a smokey mist & saw the balloon above us against the sky just in time to dodge it. We had no information of the balloon, so I reported it on my return. Dlugaszewski had avoided it too. Capt. Wills took a serious view of our not being informed & took it up with the Air Ministry instantly.

It was cold today with heavy snow showers, making cross country rather an anxious business. From Droitwich to Gloucester we were in the lee of Birmingham & visibility got slowly worse & finally about 800 yards.

Turning towards the hills on which Aston Down stands, I feared we might bump into them, so I pulled up into the stuff. This is the first time I have done this, but I thought it the best thing to do under the circumstances, & since it appeared not too thick. Moreover It was.

Actually we came out on top & saw Aston Down almost immediately through a hole. But I did not like having to do it – with no radio, it is a last resort.

Towards the Thames Valley visibility was at least 10 miles in bright sunshine. The snow concealed all colours of the landscape so that it was like trying to navigate over an aerial photograph in black & white.

In regard to the nomad balloon, Fairweather said he was quite willing to get fired for shooting it down with a Verey pistol. That might bring the subject to a head.

Friday 3 Jan 1941

The A.T.A. had an unfortunate day today – from accidents. Capt. Horsey (a senior skipper of Imp. Airways) had the engine fail in a Tomahawk & was seriously injured (died later). Capt. Napier was also injured taking a Blenheim off. (died later). And a Blenheim could not get its wheels down landing at W.Waltham. Richardson also had a forced landing.

But I was fortunate with two bright pupils (both older & more experienced than I!) – a Frenchman and an American.

It was so cold today that several of the machines could not be started. But I did 2 hours 40 after lunch. The snow in the midlands makes cross country more difficult than normal.

Phelps who I only just passed with a poor report, distinguished himself today by being my first pupil to lose himself. However, the conditions were difficult. So I must give him more dual tomorrow; his trouble is over confidence.

Sunday 5 Jan 1940*

No flying today. No pupils ready for me.

Monday 6 Jan 1941

The 9 p.m B.B.C. news gave us a shock tonight when they announced that Amy Johnson was missing. “Something happened to her machine over the Thames Estuary. She was seen to bale out; a launch searched for her sometime without success”.

What a spectacular end to a spectacular life. I cannot understand why she was over the Thames Estuary. The A.T.A. girls fly trainers only and trainers don't usually go that way. Doubtless, shall find out tomorrow how the tragedy occurred. She is the first of the girls to be killed. I remember a couple of pleasant trips home from Hatfield in her Anson during the summer.

Quite a heavy fall of snow here tonight – about 3 inches. My leave day; found a loud rattle at 45 mph which developed recently on the Riley was caused by broken bolts, holding down the bracket over the rear of the gearbox rubber mounting. Replaced them with high tensile & took the opportunity of draining the gearbox.

Tuesday 7 Jan 1941

The snow stopped all flying at White Waltham today. It seems that Amy was flying an Oxford from Blackpool to Kidlington & had been 5 hours in the air when the accident occurred. It would therefore seem that she got lost, went “over the top” & could not get down again, finally running out of petrol. The weather forecast was very bad 1-2000 yds visibility in the Midlands & icing conditions at all heights. If she started off without a forecast, it was unwise with snow all over the country; if she did get such a forecast, then most good pilots would not have attempted to make the journey.

Had a pleasant drink with Len Barkway tonight.

Wednesday 8 Jan 1941

Farmer Young had a nasty collision on the ice this morning in his little Ford. The van was wrecked but he was not seriously injured. I drove very slowly to work; we could not fly till after lunch – ice on the wings. Then it began to thaw and I did ¾ hour locally in poor visibility.

Excellent news from Libya; 70000 Italian Prisoners, Bardia taken; 500 allied casualties.

Thursday 9 Jan 1941

Brilliant sunshine but cold east wind. Passed out three experienced men in one day – Imelia, Chalmers & Bradley.

Over three hours flying; two trips to Hullavington L. Rissington, Halton etc.

Friday 10 Jan 1941

No pupils today for navigation till afternoon. Then did Rogers & Moss compass & gyro locally.

Saturday 11 Jan 1941

Again no pupils available for me. Checked out three Americans on Battle cockpit.

Had a bit of “dual” on slide rule & logarithms with colleague Sloper.

Sunday 12 Jan 1941

A pupil lost me for the second time today – when I least expected it! Leaving S. Farnborough for Hullavington, we thought we were South of the track, when we were actually north of it. Failing to see Marlborough at the estimated time, I deliberately turned north & soon sighted Brize Norton – much to the astonishment of all on board, including myself. I had two A.T.A. Second Officers (Moss & Pickering) and an American (Douglas). Weather was poor at S Farnborough but fortunately improved greatly on the route. Subsequently, we worked out that we had much less southerly drift than we had been lead to expect by the met. forecast. We were actually 20° to the north of the track & had started off steering 12° to the North & subsequently increased this when we imagined we were to the South. The astonishing thing was that we crossed the G.W.R. Reading to Newbury line without seeing it. I suspect my attention was diverted at that moment by a squadron of Whitleys.

Three hours flying today, completed 100 hours of instructional flying in my first 6 weeks. Of actual ferry work (not counting return trips as passenger) I did 150 hours in seven months before.

Monday 13 Jan 1941

Quiet day's leave. Went to flicks with Bill Davey, who had a lucky escape last week when his car skidded down an icy hill into a lorry.

Tuesday 14 Jan 1941

Fog persisted all morning & stopped flying. Did 40 mins after lunch when the sun broke through, but poor visibility made it very unpleasant especially facing the sun. I went out on top but found that there were too few holes to keep check of one's position while doing compass & gyro turns. And the clouds upwind were higher, so we came down immediately & did our stuff in the mist.

Wednesday 15 Jan 1941

At 1pm the B.B.C. gave the sad news that Lord Wakefield died this morning. The shock to me was softened by the fact that I knew he had been very ill during the last few days. How many thousands will mourn the passing of that dear man, as great as he was good. During all the years I have worked for him, his every action has been generous to all men at all times. I have never heard him utter an unkind word about anyone. His was the last example of a world-wide firm, entirely owned & controlled by the founder. A benevolent autocracy. With such a leader, it was brilliantly successful in the face of the full blast of competition from large combines, typical of the modern age. One could feel about him like Sir Francis Drake & his small vessel, British built & British manned, sailing into the great Armada. He had that same air about him. He could finish his game of bowls, & then lead on to victory.

The firm can never be quite the same now that he has gone. Pray God that his faithful Walter Senneck a man of genius, will be spared to us until he too is eighty one. In working so closely with the chief for over thirty years, he has inherited the same understanding, intuition & generous heart. It is a mercy that he is now at the helm in these critical days.

This sad day was also the worst of weather this winter – continuous snow. So, with flying impossible, I was able to call at West Ridge to see if I could do anything. Fortunately I was able to have ten minutes with W.H.S. who was L.M.B. when I called. W.H.S. told me that the Chief's passing was peaceful & painless. And, typically thinking of others although under a great strain, W.H.S. told me to take care of myself “because we want you back after the war. There will be a big task in front of us then”.

Thursday 16 Jan 1941

Thick haze made visibility about 3 miles at 1000 feet this afternoon, but from 6000 ft it was possible to see over 10 miles, except into the sun over smoky towns. So we spent two hours up there. Descended at 500 feet a minute which was fast enough for my eardrums, after being up there so long.

It was my first landing on snow with a fast machine. So I did a circuit at 1000 ft to get my eye adjusted & touched down nicely.

Today we moved into the magnificent Instructor's room (formerly De Havilland's). It has a lovely outlook over the aerodrome from a great bay window. Luxury! Fitted carpet, telephone, armchairs & central heating.

Tuesday 17 Jan 1941

A pleasant cruise in sunshine above the haze to Kemble, Brize Norton Halton etc. Since visibility was over 10 miles, the snow did not obscure the really prominent landmarks. Three good landings on snow with the Oxford. One cylinder cut out on the port motor taking off & delayed our departure.

Sat 18 Jan 1941

Heaviest snow this winter continued all day. Started to learn Morse. Read proofs for Molloy of Newnes “Navigation” volumes.

Sunday 19 Jan 1941

Thawing. Water through our bedroom ceilings. Impossible cross-country weather; A.T.A. washed out. The school stopped flying (except Moths) because the slush flung into the flaps on landing was causing damage.

I did 2 hours locally on a Stinson; my first two women pupils – one very quick to learn. Excellent roast beef for dinner – our first for many weeks.

Monday 20 Jan 1941

Leave: Took 5 bucketfulls of snow out of our roof.

Tuesday 21 Jan 1941

The Weather Forecast Board contained no elaborate report today; just a single word covering the whole country – “Lousy!” So we did a bit of Morse in the instructors room & washed out early.

Wed 22 Jan 1941

Gladys & I attended the memorial service for Lord Wakefield at St. Paul's today. This sad occasion was relieved by the pleasure of seeing Mum & Dad, & many old friends who were gathered there. Moreover, Mr Senneck & Tho. Blades gave us a most unexpected & very pleasant lunch.

Among the crowd in the crypt, I noticed Mr Graham, Kaye Don, Malcolm Campbell, Mollison. George Egaton attended the funeral last Saturday.

The damage in London is bad enough, but not so serious as I expected – at least in the roads we saw.

Thurs & Friday 23 & 24 Jan 1941

Two days fog stopped flying. This is a serious delay for there are over 800 aircraft waiting to be moved by us. I was told that so far the White Waltham Section has moved 16000 aircraft.

Jim Weir told a lovely story of the crews being shown the first tropical type Ensign at Croydon. They found that the emergency operating crank of the starboard undercarriage wheel was in the ladies lavatory. So they asked what happened if the door was locked. Whereupon the factory representative proudly said “Ah we’ve thought of that. The person inside thinks the door is locked – but it isn’t if you press this concealed knob”

Dead silence. Capt. Horsey then said, “We must practise this” He then opened the door saying “Don’t get up Lady Astor, I only wanted to lower the wheels!”

Sat 25 Jan 41

Rain poured down all day – no flying. Weather has stopped flying all this week. First time this has happened since I joined A.T.A.

Sun 26 Jan 1941

Weather ditto. McMillan called a conference of instructors & explained his plans for the expansion of the school. We are to have over 90 aircraft & 25 instructors.

Mon 27 Jan 1941

Leave. Dreadful weather. Penn in clouds & rain. Washed car, drained sump, did battery etc. Saw Chaplin’s “Great Dictator”; a brilliant piece of work. Must have a strong effect on public opinion in America.

Tuesday & Wednesday 28-29 Jan

Still the impossible weather continues – rain & thick mist holding visibility down to 800 yards.

I had a try for the first time in a Link trainer, blind flying, & was pleased on accomplishing an accurate triangular course in six minutes. It does not “feel” like any aeroplane so must be flown entirely on the instruments.

Can nearly manage three words a minute Morse on the lamp.

Thrilling news that Maurice Griffiths has been awarded the George Medal.

Thursday 30 Jan 1941

At dawn it seemed the weather might clear today but instead the fog came down thicker than ever. My Morse is improving: at least I know the alphabet.

FRIDAY _____ FOG.
Stayed home. (Haircut)

SATURDAY 30 Jan 1941

This afternoon the weather cleared suddenly – the sun broke through & a north wind blew the mist away. Did 2½ hours and completed two pupils.

We were told that tomorrow all the instructors must go ferrying since there are so many machines to be moved. It will be an interesting change. There must be well on a thousand aircraft to be moved and the R.A.F. may lend us 200 of their pilots to assist in the work – or perhaps not.

Sunday 2 Feb 1941

My orders were to take a long nosed Blenheim to Colerne & bring a Piper Cub (!) back from Weston.S.Mare. But the Met said it would be snowing down there. The Blenheim had enough petrol left in its four tanks so I decided not to wait for more fuel. However the port engine smoked from the cowling while running up. I could not persuade the propellers to change into course pitch & the cylinders went up to 250°C. However the oil was cool so I took off.

The Blenheim gives a tremendous impression of speed because it cruises effortlessly at 200 mph at very low revs. & “zero” boost in weak. The weather progressively deteriorated towards the West but I found Colerne ok mentally noting that one is wise to fly fast types only in good weather.

It was my first landing with a fast twin on a runway. Some difficulty in keeping straight although dead into wind. An aircraftsman then persuaded me to fly it round into a rough landing field temporarily in use. My orders were “runways only” serviceable, but having seen an Anson land on the field I decided to attempt & went round wheels down in fine pitch & landed OK. Fortunately the wet earth was frozen; had the noon sun melted it, it would have been dangerous.

Then I flew my stooge in his Puss Moth south of Bath & we got within 2 miles of Weston when we met the snow & were compelled to return to White Waltham.

For the first time, I then gave landing instruction on the Oxford to an American who had been injured when his Blenheim nosed over on a soft aerodrome. Afterwards I had the honour of accompanying colleague Weir of Imperial Airways who did a couple of beautiful circuits, fancy such an ace” pilot saying to me “Don’t hesitate to grab her if I do anything silly”!

A very enjoyable & varied day’s flying – 3½ hours.

3 Feb 1941

I was given a Blenheim to ferry to S. Wales (Landow) but all morning it was snowing & the weather along the route dangerous so I waited. Took a look at the conditions in a Moth with passenger Mr Jackson of the Ministry of Information. He is planning a four reel film to tell the world about our work & was very thrilled by holding the controls of the Moth for a few minutes.

Later in the day it cleared up & the A.T.A. pilots cracked off. But there was no taxi back from S Wales, so my trip was cancelled.

Went with colleague Henderson to Radlett for him to collect a Halifax - but it was not ready. He landed the Oxford nicely flaps up in a 30 mph wind, but not so well at W.Waltham flaps down.

4 Feb 1941

Flew the Oxford five up for the first time today; she carried the overload & full tanks very well, and made a pansy landing at Radlett.

Henderson's Halifax was most impressive with its four great engines. A flight engineer has a separate control room with all the temperatures & pressure gauges for fuel, oil & water. From the pilot's seat, the ground looks a long long way below. The undercarriage swings up on a steel pin about as thick as a man's leg.

Misty trip across to Little Rissington & back – visibility 1 – 2 miles most of the way. So Hendy did darn well to get his giant there.

What a pity his pupil on a Harvard later in the day forgot to lower the wheels when doing a practise forced landing at W.Waltham!

I was glad to finish two pupils today since we have so many to cope with now. 2½ hours flying.

Wed 5 Feb 1941

Two round trips with Americans, showing them as many aerodromes as possible. Ran into snow at Hullavington.

Thursday 6 Feb 1941

Port engine lost power on my Oxford so I borrowed a dual Anson from the pool & took four pupils to North Weald & brought back four R.A.F. pilots as well – loaned to the pool. It was the first time I had flown with eight passengers. Nine up on the Anson would have been awkward on a soft wet aerodrome, but the take off was quite normal on a tarmac runway. And the landing at White Waltham was delightful. The Anson is a sweet & lovely thing to put down (and so is the Blenheim) - after the nasty tricks & temperament of the Oxford.

At North Weald, we waited in the hut at the dispersal point with the fighter pilots. An enemy raid was signalled & four Hurricanes shot off to investigate. The Flight Commander discussed with me the relative merits of the Spit & the Hurricane.

Friday 7 Feb 1941

I tried to borrow a machine before lunch but none was available. At noon I test flew my Oxford & found it O.K. The propellers had been changed over & now I get equal revs & equal boost with equal throttle openings. Evidently, the port engine is down a bit on power but is now turning a prop with slightly less pitch – which evens it up with the starboard.

Had a pleasant run to Hullavington but the ceiling came down over the hills north of Bath. I turned back only just in time – we were in the clouds on the turn at about 200 feet off the deck.

Later when I had done local compass & gyro with pupil Wren he said “Until you come to a school like this, you don't realise how much you don't know”. He hadn't been in a twin before with all the modern features.

Gusty wind of 30 mph near to the ground. I found the most comfortable landing was with about 30° of flap and a “wheeler”; stick forward after the touchdown to stop her bouncing off our rough aerodrome.

Jim Weir convinced a pupil that the only time a Harvard is likely to drop a wing is if you bounce off & don't catch her with the throttle. This is worth remembering.

Sat 8 Feb 1941

Mr Gribble the technical lecturer wanted to go down to Bristol. With 5 up the Oxford used all the run available on the soft ground at White Waltham in spite of a strong wind. But at Whitchurch we got off crosswind on the tarmac in not much more than 200 yards. Returned via Little Rissington & Brize Norton at ground speed of 178 m.p.h.

Then did a local trip and a run to Bicester. An enjoyable day's work in good visibility below the ceiling at 1500 feet. Completed two pupils.

Sunday 9 Feb 1941

Cloud base of 700 feet ¹⁰/₁₀ persisted all morning, so I went out through the Reading gap & back. It lifted a bit in the late afternoon. Felt tired after nearly four hours flying & instructing, with no day off for 10 days. Jim Weir flight tested a man who claimed 400 hours. After a bit, Jim asked what aerodrome was below when they were over White Waltham. "Harwell, near Swindon" replied the line-shooter. "O.K." says Jim "We'll land there & have lunch" I wonder what the fellow thought as he walked back on the tarmac?

Of the twenty R.A.F. pilots loaned to us to help with our areas of work, five had accidents & were suspended in the first two days. The others are only allowed to fly when they can follow an A.T.A. pilot. Which proves that they can't do our kind of flying any more than we could do theirs.

Monday 10 Feb 1941

Leave: spring like weather. Gave Riley a much needed wash.

Tuesday 11 Feb 1941

Fog all day. Instructors given a technical lecture by Mr Gribble on Lockheed 12.

Wed 12 Feb 1941

More fog. One of our lads was killed yesterday at Stoke on Trent. Hit a hangar on his circuit in a Spit. Did a bit of Morse today, discussed solo routes for Moths pupils with Sloper. Collected some data on Percival Gull.

Thursday 13 Feb 1941

Cloud on the ground stopped west of Farnborough, so we went through the Reading gap towards Hullavington. Wroughton in cloud & the railway line could not be followed beyond Swindon.

In the afternoon it lifted & we did a run to Little Rissington.

I flight tested the Percival Gull with electric Rotol adjustable pitch airscrew. At max permissible cruising (2100 & -3 boost) she did only 110 m.p.h. with the pitch nearly fully fine & almost losing height. So either the motor lacks power or the absence of wheel spats makes a big difference. She might go to 140. Moreover the take off (even with 15° of flap) is overlong. But the engine runs sweetly & she is easy to land.

Friday 14 Feb 1941

Three flying hours in good visibility – Droitwich S Cerney etc. Two good Polish pupils.

Sat 15 Feb 1941

It is nearly 3 months since I flew a 1000 h.p. single seater. So since I have not today a long waiting list of pupils, I asked to do a ferry trip & collected a Hurricane from Langley.

One's impression, after such a long interval on larger & slower types, are quite refreshing. First, the take off. What colossal acceleration! A kind of pins & needles in the neck & head (some kind of "G" effect) – Like the effect of a steep turn but not felt in the stomach. Then the climb at high forward speed. First object noted on leaving the ground is Windsor Castle – which must be about 5 miles.

A couple of turns left & right, disclose the Famous Hawker Ailerons, so powerful yet so light. The landing seems very easy – after so many on Oxfords, the temperamental jades.

The Rolls-Royce is my favourite engine so torrential at full power, its great musical note rising & swelling effortlessly. But it has a special charm, impossible to describe, when taxiing gently across to the tarmac. A subdued, suggestive crackle breaking into song at a touch of the throttle. And that characteristic bitter- sweet smell of doped fuel exhaust –with the hood back in a cross-wind.

A lovely, fascinating aeroplane – a thoroughbred. One has but to fly the Hurricane to know and to feel that British craftsmanship is still the best in the world.

Later I did two & a half hours in the Oxford with visibility of 50 miles. But my American pupil Jarret lost himself solo in a Moth! Force landed in a field. Poor reading + carelessness.

Sunday 16 Feb 1941

Very low cloud & rain – no flying. Managed about 4 words a minute on the Morse lamp.

Mon 17 Feb 1941

Leave. 3 new Dunlops on the Riley. Found that the brakes need re lining and new oil retainers in the axle.

Gladys got up for an hour after her bout of 'flu.

Thursday 18 Feb 1941

A.T.A. washed out all day. Tremendous argument among instructors: I suggested that fewer pupils would get lost if they were shown how slowly a modern type will fly with flaps down in fine pitch. Capt. Neill's main point was that they should not fly in bad weather, to which I announced that they get caught out sooner or later. He then said he thought 160 was slow enough; I argued that 110 was safer and I was supported by ferry pilots present. In the end, Neill saw our point of view & will discuss with Macmillan the question of including slow flying in the school curriculum. Neill's main objection is that while the stalling speed may be slower flaps down, the inexperienced pilot is more likely to lose speed to that point, with flaps down. I don't think he appreciated that we were only considering the case of "power on" not "power off".

I mentioned the occasion when I slowed the Oxford down to 90 with 10° flap, to keep formation with my taxi Puss Moth in a mist – as an example of the usefulness of slow flying.

Wed 19 Feb 1941

A last war pilot – when – after 8 hours map reading & cross country, makes such slow progress that Macmillan called for a report on him. I had to say, though I am fond of the dear old gentleman, he is not safe to go cross country on a Moth and that I doubt whether he will ever be quick enough to deliver Hurricanes. In another 7 hours or so, I could get him up to "light types" standard.

Mac said that this was not good enough, & that we must give precedence to more apt pupils. So poor Wren is suspended; he may be called again later.

Thursday 20 Feb 1941

Last night the Huns dropped 14 bombs on the aerodrome. The lot fell across one corner & smashed a Stinson & damaged two other machines.

But I flew over the wreck of a Hun bomber, smeared across a field North of Maidenhead, after encountering one of our night fighters.

Today passed out four pupils, two Americans & two English. This afternoon, we had to fly round three dense snowstorms, which stood like mile thick solid columns between the cloud & the deck. In between them visibility was twenty miles. To get back, we followed the railway line through Reading in a snow storm. We could see down from 300 feet; forward visibility about 1000 yards. But we took it comfortably at 100 – 110 m.p.h. flaps 20° down, carburettor & pitot head heaters on.

Friday 21 Feb 1941

I took 2 of the fighter pilots back to North Weald. They said they had not realised what we were up against until they had worked with us. They seemed to think their job was easier! Sherwood called to our pleasant surprise. He has been offered £120 for the green Riley - & refused.

Sat 22 Feb 1941

My 32nd Birthday. I had the pleasant change of collecting a Hurricane from Langley for Capt. Neill to fly home to Shawbury. It had the Merlin XX of 1250 h.p. (+12 boost for take off) so there was plenty of urge. Thick mist in the valley, but as I went off between the balloons, the sun was painting them silver up above. She cruised at 250 m.p.h. at 2600 and +6 - which is below the permissible for continuous cruising. And quickly reached 300 with the nose down a bit.

I was pleased to see Charles Dutton, who has a lot of brains but only one arm, do an excellent first solo on the Harvard. I suppose he will soon be flying Hurricanes; that will surprise the factory and the R.A.F. when he goes to collect his first.

Sun 23 Feb 1941

I climbed 4000 feet through the sunlit mist but could not see enough below for local compass & gyro turns. But in the afternoon it cleared beautifully and I passed out an Austrian anti-nazi.

Mon 24 Feb 1941

Leave; front brakes re-lined. Much improved.

Tuesday 25 Feb 1941

Four hours interesting flying. Two A.T.A. second officers, having ferried many Moths on simple map reading & now in for class II types, were somewhat sceptical of our navigational method. Fortunately I was able to give them a trip in smoke haze which convinced them. Facing the sun, map reading alone was difficult if not impossible without the assistance of E.T.A.s. visibility towards the sun not more than a mile – but two miles with the sun behind.

Mr Morgan, highly qualified engineering lecturer, was passenger & said "I don't know how you do it; it all happens too fast for me".

Later I did a trip to Gatwick with Commander Galley – The Air Attaché at the American Embassy. The visibility was three miles. But he seemed to doubt it.

Wednesday 26.2.41

Did a tour of aerodromes with another American attaché commander Macdonnel. A new Oxford has arrived & Capt. Neill has allotted it for my exclusive use. Very nice of him.

Sat 1 March 1941

In a high wind today, I landed a modern type flaps up for the first time. (Previously under similar conditions I have used ½ flap). I brought the Oxford in fast 100 -110, but owing to the wind the ground speed was normal. Surface wind 30 or more. The run after the landing was rather long with flaps up – the wet grass making the wheel brakes useless.

Sun 2 March 1942

By a coincidence today, I intended to observe the airspeed of the Oxford at the moment of unstick – the first time I resolved to do this. And for the first time in my experience, the A.S.I. was not working! So I made a circuit and approach with plenty of power on, and succeeded in doing a good landing. This was interesting for I have often wondered how I should get on if the A.S.I. failed. Fortunately I am now familiar with the attitude of the Oxford on the approach and the feel and sound of it at 85. And I knew she would be unlikely to stall with flaps down, nose down and -2 boost.

The trouble was that the mechanic & I had not noticed the red flag on the pitot head which marks the stocking applied to keep the rain out.

Later I had two intelligent girl pupils – Mrs Lambton & Miss Broad. Quite a relief after the dense male specimens I've had for the last two days.

Mon 3 March 1941

Leave. Roy & Kathleen Brough to lunch. Haircut

Tues 4 March 1941

Lord Wakefield's will published. He left ¾ million. Many bequests to his favourite charities.

Wed 5 March 1941

This evening an American doing his first solo on the Battle, got one leg stuck up & one down. He behaved with great calm & skill. Dropped a note to the fascinated spectators on the tarmac, who could do nothing to help except get out the ambulance & the fire engine. His predicament was complicated because he had no flaps or brakes either; complete hydraulic failure.

His first touch down was too fast – there being no wind at sunset – so he went round again. His second touchdown was perfect. The machine slithered around 180° & damage was limited to the wing tip; even the propeller and radiator escaped injury. We clapped a very neat piece of flying.

Thursday 6 March 1941

Following yesterday's Battle landing on one wheel, I mentioned this morning that I had a similar incident on my second solo in a Moth in 1933. Now for the coincidence. This very afternoon it happened to Capt. Neill in a Moth. Apparently he inadvertently allowed a pupil to lose speed turning in on a forced landing practice and the Moth started a spin. Neill just checked it in time but a wheel was knocked off on the ground! But he managed to climb away & bring it back to pancake on the aerodrome.



Today I passed out my first Chinese pupil – Chang, "B" license son of the Chinese Generalissimo Chang Kai Shek. Another pupil was flying the mail from Cologne to London in 1919. But he had never seen a modern compass or directional gyro.

Saturday 8 March 1941

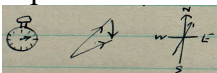
For the first time this winter, the aerodrome was unserviceable today except for light types. The big twins were ploughing the surface into ruts after the recent heavy rains. Many aerodromes have been u/s for a month, but White Waltham seems to have good natural drainage. So I did three ½ hour trips in a Magister. How small & light it seemed! The day was not cold, a light S.E. wind ; I was quite warm in the front seat with my Sidcot outer.

Sunday 9 March 1941

Did the acceptance flight tests of three new Oxfords with newly joined Bergel, formally of the "Ev News"

After lunch I had to take George Kemp home to S. Wales, Sloper to Weston s Mare. The pupil on board was commander Gallery U.S. Navy from the American Embassy. The forecast was 4 miles & 1000 feet in the Bristol Channel but 1 mile & 300 feet South of Swindon. So we decided to Bradshaw down to Minehead. Across the 16 miles of water to St. Athans the vis was only 1 mile & we flew at 100 feet, 150 m.p.h. The trip back was distinctly sticky, continuous low cloud & visibility mostly 3 miles but sometimes less. Coming along the valley from Frome to Newbury, I reassured the Commander by pointing out that we had got over the "summit" of the canal because the lock gates were now like this  instead of this .

Jim Weir shot off green lights as we arrived back (in fun I guess) – though they had put my car in a safe place, in case we did not get back. As we walked in through the doors, the instructors welcomed us standing caps off round a blackboard of cartoons about the "Railway King" J. Sextant Watson E.T.A.



After landing Commander Gallery had slapped me on the back & said "Thanks, skipper, - that was an instructive trip". I said it was an example of how not to do a cross country – but the only way to do it safely under the prevailing conditions. He agreed.

Thursday 13 March 1941

The Engineering lecturer, Mr Moyen was apparently moved to verse by our Sunday run to the West. He exhibited an anonymous poem about it on the notice board. I must get a copy of it. Actually, I've made runs under more difficult circumstance which excited no interest.

Today there was a sunlit mist with visibility going from 1 mile to 3 miles and better in places. We did four hours very pleasantly & passed out four Americans & a Polish aircraft designer. Near Swindon, I suddenly saw a Hurricane, blinding towards the sun, aiming straight at us on the port beam. He was on us in a flash; I yanked the machine up & he flashed past just underneath us. I don't think he saw us at all, until we were over him. It was the narrowest shave I have ever seen in the air.

One of my Americans, solo on the Battle, did not return tonight; I hope he is O.K.

Another instructor assists me now. Beville, an American. He approves our method of cross country.

Friday 14 March 1941

One of my first pupils – the arrogant Leahy – was to be checked out for Class II. I said that we would return if he did not like the weather. We climbed to 5000 feet to get above the sunlit mist. At White Waltham it was thick & was like flying over cloud, but towards Watford it thinned out as we got out of the lee of London. It became like looking down on to the bottom of a limpid pool. It was O.K. at Oxford but had deteriorated to less than 200 yards when we returned, so I had to approach the aerodrome with great care, along the railway line from the Reading side.

Sat 15 March 1941

Thicker mist this morning. I took the two Met. Blokes & my colleague up to have a look at it. We came out at 4,500 over Princes Risborough. On the north side of the hills, we could not see the ground. A layer of stratus cloud was on the deck. In the afternoon I had another look at it, but it was no good for dual cross country. Herbert Broad, the Hurricane Test Pilot, had lunch with me. He was unable to get back into Langley. I learned much of interest – Hurricane developments etc.

Apparently each Hurricane produced is flown to 25000 feet at +9 boost & 2850. Without military load the rate of climb is 4000 feet a minute! Level speed is checked at 17,000 feet and again at 25,000 with high gear engaged on the blower. They then dive to 380 m.p.h. before checking the lateral trim. After the dive, the trim is permanently different – presumably due to the flexing of the structure, controls etc.

This test is not done over $10/10$ cloud; they usually try to keep their eye on some prominent landmark.

Friday 20 March 1941

Fog has stopped flying every morning this week. At 1.30 it thinned out to 2000 yards, so I climbed up to 6000 feet & came out on top with a hard line of the mist horizon. Below we could just distinguish prominent landmarks. Did an hour of compass & gyro turns before descending. Then two trips to Oxford at 500 feet vis about 2 miles.

Sunday 31 March 1941

This week I've been more towards Huntingdon & Cambridgeshire; navigation is different over that way. Flat land; no hills to recognise one's general position if off course.

Today flew Callaz & Sloper to Weston Super Mare in lovely weather, with two good Americans.

The aerodrome was waterlogged & partly unserviceable. Knowing this I arrived with tanks half empty & landed without difficulty. The take-off was O.K. since we were able to cross the boundary low down with the wheels going up.

A column of smoke from an oil tank fire rose 1000 ft above Avonmouth & spread 10 miles West. The Huns bombed it last night.

1st & 2nd April Tuesday & Wed

Low cloud & rain stopped all flying.

Macmillan addressed the "faculty". Indicated he has 320 pilots waiting test & training. Wants 6 hours per day per aircraft + 2 hrs per pupil. Expects that we may have to use two aerodromes.

Thursday 3 April 1941

Another fatal accident today. Poor Bodinnar – a most popular chap – crashed a Hurricane in filthy weather. That makes three killed in a week.

The first was my American pupil Holcomb – who lost himself in a school Battle about three weeks ago; poor lad – he was my least good American pupil. He turned into the mountains off the Cumberland coast in a Master. Then, millionaire Loewenstein last Saturday did a circuit of White Waltham in lovely weather & crashed on the approach. Whether he stalled on the turn & an engine failed I don't know. What a pity it all is! I suppose now at least a dozen good men at least have lost their lives ferrying in the A.T.A. Satel, Horsey, Amy Johnson, Randall, Cummings, Fontes, & others.

Today I did 4 hrs 35 mins cross country – my longest day's instruction. We got off course near Cambridge but after flying S.W. for some minutes I chanced to recognise a bend in a road at Great Chesterford near Duxford – on our road to the Broads. It was misty at the time - but then we were able to find Duxford alright. Ground speed of 205 from Andover to Odiham in "Rich" in the Oxford today.

Friday 4 April 1941

4½ hours flying today enabled me to pass out three Americans. Went through one heavy storm of rain at Sywell.

Sat 5 April 1941

Extraordinary weather today; fog stopped flying all morning. Vis improved to 3 or 4 miles this afternoon. As I arrived back from 2½ hours cross country, there was a dense rainstorm in the Maidenhead area. No sooner had I landed, with some difficulty, than the heavens opened, the rain fell in a great torrent, thunder crashed and all daylight was blotted by opaque cloud at about 500 feet. Though two hours before sunset, it became as black as nearly night time. We could not see across the aerodrome when we heard a Mohawk come over. We shot off a succession of green lights, & after several circuits, the pilot made a perfect landing; however the ground was so soaked & with no wind, the machine skidded right across the aerodrome & overturned on hitting the hedge. From the tarmac we could not see the accident; but the ambulance brought the pilot in – quite uninjured.

An hour later it was still pouring with rain when I left the aerodrome – yet at Marlow, only five miles away, the roads were bone dry!

Monday 7 April 1941

Leave. Sump, gearbox, axle drained. Battery, tyres topped up. Saw good Donald Duck & "Foreign Correspondent" also V.G.

Tuesday 8 April 1941

Today fulfilled my ambition to fly a really big bomber – a Wellington. This one was unusual in having Pratt & Whitney Wasps instead of Bristol or Rolls engines. Capt. Griffith flew one circuit, then bravely stood beside me without dual controls while I flew him. By misfortune he hit a ridge landing & bounced. I was more lucky, sat down beyond the ridge smoothly.

The flying controls felt about as heavy as I expected. Remarkably little change of trim – one could take off, cruise & land without altering the trimmers. But the auxiliary controls are more complex than on the Halifax for example – where the engineer has all the petrol cocks & gauges, oil & water temperatures, gill controls etc. My great mistake was in opening up to +12 instead of +9 for take off. The British type boost gauges made me forget that American carburettors were fitted – without automatic boost control. I had some slight difficulty on the climb in synchronising boosts & revs owing to the short travel of the levers. In the air, she

naturally took her time to respond to the aileron controls. On the approach, the first difficulty was to aim straight since the slightest difference between the throttles swung her one way or the other (1,200 h.p. each side). The rudder was light but ineffective. The second difficulty was to cross the hedge low enough; there did not seem enough room between the trees. One had to come in between them, since there was practically no wind, so a short touchdown was essential.

I think the pilot's seat & the general neat & compact layout of all the controls make it the most comfortable machine I have ever flown. It is the only machine I know where the nose comes up as the flaps go down ; therefore one lets them down only 35° at 110 mph then fully down at 100 m.p.h. with low engine power. Evidently, Griff was satisfied with my work, for he marked me O.K. to solo Wellingtons.

Wed 9 April 1940

Solo on another new type today – the famous Lockheed 12a – one of the only two in the country; formerly owned by Lord Beaverbrook of Furness. It was very interesting; a beautifully built all metal machine with all the modern features and one or two minor faults. Easier to fly & land than I expected. Poorly fitting windscreen, very blind view, some instrument calibrations difficult to read.

The control layout is obviously “streamlined” by an industrial designer. Very pansy; all the knobs with amber-like handles. Some controls more neat than practical – for example, the electric switch which lowers the flaps - & will lift them if pushed just beyond the neutral position. My first experience of electric retracted undercart & flaps. The engines run very smoothly & without any vibration, but lacking automatic boost control, one has to watch the gauges which is not easy while opening up on the takeoff.

Simple petrol system; engine selector, tank selector. Unusual feature, tail wheel locking lever.

Easter Monday 14 April 1941

My American pupils have not distinguished themselves last week. Two got lost & made force landings to find their position. One had flown off his maps. The other smashed his Magister,

This seems to me astonishing considering that they have some hundreds of hours experience. The early members of A.T.A. did better with less experience & no cross country dual instruction.

On Saturday flew Capt. Kemp to S. Wales & yesterday Sloper & Callaz to Bristol. Good weather.

Tuesday 15 April 1941

To my chagrin, I had an accident taxiing out today. I had not travelled 80 yards when I saw on my left a Battle taking off straight at me. He had covered $\frac{3}{4}$ of the aerodrome & had still his wheels on the ground. I thought perhaps he was in course pitch and could not rise in time to miss me. So I turned right easily – the wind being on my starboard. But when I wanted to turn left again, I could neither turn or stop – the brakes had failed! So I rolled 10 yards downhill into a Magister, damaging his leading edge & mine, & breaking my starboard prop. Now before moving out I noted that my brake bottle had 100 lbs pressure; moreover I had flown the machine $1\frac{3}{4}$ hours before lunch & it was O.K. Mechanic Simmons promptly tested my brakes & found that they were not working. Perhaps the bottle had lost its wind & the gauge had stuck up.

On another Oxford, I experimented & found that 100 lbs in the bottle would give 40 lbs in the drums & provide good braking. But on the one that failed 100 lbs gave nothing in the drums. So in future it will not be sufficient for me to see the bottle pressure; I shall want to see 40 lbs on the other two needles. Macmillan was very decent about it – said “Don't worry about it. Of course it will be the subject of an Accident Investigation”

On returning to White Waltham in the next Oxford I could only get one green light from the wheels. So I circled round & lifted them up & down about 8 times at various airspeeds, holding the lever down to build

up very high pressure. Finally I tried with throttles shut so that we heard the horn blow & then stop although still no green light. So I did one dummy run past the tarmac, turned & fired my Verey pistol upwards through the window.

That caused the ground staff to sound the crash alarm, the fire engine & ambulance started up & moved out, the aerodrome was cleared & quite a crowd collected on the tarmac. We fastened our belts & came in. The landing was normal; the wheel did not fold up. I anticipated that all would be well, since the symptoms suggested that the only trouble was in the electrical warning light system. But I had had to give the trouble signal, in case the wheel did fold up. Quite an exciting day one way and another.

Wed 16 April 1941

Visited Ringway today for the first time. Lovely bright day in the South, showers & overcast in North. Went up by way Droitwich then turned east on the north side of Crewe balloons to Macclesfield, & Woodford. Aerodrome very soft. Saw the 24 cylinder Rolls engine uncowed; very impressive. Avro Manchester has two. Ringway unattractive. Came back on the east side of the Midlands – over the mountains to Derby & Sywell. 1½ hours each way. Had not been north of Birmingham for a couple of months or so. Hence enjoyed the trip.

In view of the shortage of Class I aircraft for our 70 Class I pilots, it has been decided to join a cross country Pool for them under Jim Weir. The object being to give them thirty or forty solo cross countries on school aircraft. Successful workers to be converted to Class II before going to the Training Pool.

Thursday 17 April 1941

Four hours in good weather with fairly dense pupils.

Sunday 20 April 1941

Went up the east side of Birmingham to Wolverhampton to collect J.V. Wood Chief Operations Officer. Turned back at Leicester in very dense thunderstorm & landed at Sywell. Met my former instructor Cliff of Brooklands. He is still instructing on Tigers so did not know our cockpit drill but was very pleased by a circuit in the Oxford.

Used Watling Street to Lichfield & came back down the west side from Wolverhampton.

Monday 21 April 1941

Dinner with Hoot Gibson & Taylor now Sgt pilot with wings having completed course at Montrose F.T.S. on Master. Expecting posting to O.T.U. I was sad to learn that with only 47 hours total on Moths he was solo on Master with about 4 hours dual & soon after night flying. This is so inadequate that I was not surprised to learn of many fatal accidents at Montrose. It is very sad that so many healthy young lives should be sacrificed. It is war, it is not safe flying.

Saturday 26 April 1941

Clear weather all week, so I have averaged nearly 4 hours flying every day. The Accidents Committee exonerated me from blame for the taxiing accident when the brakes failed last week.

Today I had a look round the broads, finished at Sywell, delivered some documents to Bramcote & returned to W. Waltham from Sywell in 20 mins. Then went to Gatwick & back. Very strong N.E. wind yesterday and today. Made good landings on the wheels each time, approaching at 85 power on flaps up. It is a help to the wheel brakes, to put the flaps down after the touchdown.

The wind was so strong at Sywell, I came in at 110 m.ph. & touched down at 90. Just before we came to rest, the tail was still in the air and the air speed indicator showed 60!

Yesterday Capt. Neill astonished the light type instructors by doing circuits with a pupil. In a higher wind today he took out a Moth to flight test new applicants! So we were not surprised when it was blown soon on to its back. Two solo Magisters were damaged (less severely) before light types were stopped flying.

Sun & Mon 28 . 29 April 1941

Having done about 20 hours instruction this week I felt tired out, & was glad to take an extra day's leave – my first since November (not counting Ld Wakefield's funeral) We went to Dulwich & I saw Oaks Avenue for the first time since October.

Fortunately it has survived the winter & the blitz very well. The bomb damage in town was very depressing. By lucky chance, met Mum & Dad both looking well.

Fri 2 May 1941

I flew a Hurricane today for the first time since my birthday two months ago. One of the sixty or so machines now on the school.

A fair east wind was blowing, and I surprised myself by tending to undershoot. The flaps are more fierce than the Oxford – so my first landing was not pretty. The second & third were better. One had almost forgotten how blind forward the single seaters are, compared with twins. And with the constant speed airscrew in fully fine pitch, it has a marked braking effect when the throttle is closed; speed falls off rapidly.

This effect is absent on the Oxford with fixed pitch props and a fast tick-over adjustment.

Mon 12 May 1941

Charles dear son Michael was buried today. What a large share of bad luck Chas has had.

An interesting week's work. Last Saturday I found my starboard propeller very loose at Manchester; another was flown up to me.

Coming back from Barnstaple, I explored the track of the old Lynton narrow gauge railway. In a mist off Minehead, we narrowly avoided the target towing wire behind a Henley. Dived under it.

On Saturday, took a British Airways Skipper back to Bristol & then went to Leicester for lunch.

Yesterday was very interesting, my first trip in command with a Flight Engineer to run the power units – and a lavatory compartment!

I flew six people to Bristol in the Lockheed 12. She must be held down to 100 m.p.h. before unsticking. Excellent acceleration. Very slow electric flaps. Poor view fascinating gyro pilot. No automatic boost control complicates take off. You open up both to 34 & they build up to the 36" of boost. No automatic mixture control. She cruises about 170 m.p.h. Minimum speed 80 on the approach. Touchdown not difficult. Elevator trimmers very powerful, controlled by stupid little handle.

Wed 28 May 1941

Flew an Anson, seven up to Perranporth in Cornwall this afternoon. Three pupils & three R.A.F. pilots.

How different is the Anson from the Oxford! Easy to land & take off. Roomy, solid feeling, nearly as fast with twice the load. But much more difficult to taxi in a crosswind, in view of the long tail, central brake lever, no air compressor, & slow response to the throttles (owing to the slow tickover & heavy propellers).

This last makes it unwise to throttle down completely on the approach – or speed is lost quickly. 70 is fast enough for the approach, but she runs a long way after touching down. It is a pity the wheels have to be wound up so arduously by hand.

The fighter boys down there had been out after the “Bismark” yesterday.

Wed 11 June 1941

So far “flaming June” has been incredibly wet, with low cloud, hill fog & morning mist. So we are behind with our training programme. Today the school hours have been increased from 9 to 7.30pm. I did four hours flying today – my longest day’s instruction. But one cannot do more than 3½ day after day without becoming extremely jaded.

My American colleague appeared before the magistrates yesterday charged with failing to immobilise his car, & was fined £1. He asked what was the alternative & was told 21 days imprisonment. So he said “I refuse to pay” The clerk snapped “Do you mean to say you haven’t got a pound?” “I’ve plenty of pounds” said Hall, “ but I won’t pay on principle. If you think I’m more use to your country sitting in jail, that’s O.K. It’d be a nice rest for me & much safer than flying anyway”

So they asked him exactly what work he was doing & went into a huddle for 1½ hours – finally deciding to suspend the sentence!

Today Vickers Chief Test Pilot Summers approached the aerodrome flying a Wellington & descended in his well known steep side slips left & right. This caused some disapproval as a breach of the aerodrome regulations!

12 June 1941

White Waltham was littered with bent aircraft this evening. A Battle had landed with one wheel jammed up; A Hurricane was on its nose with a broken undercart, and a Blenheim had heeled over with a flat tyre.

Yesterday a Magister, approaching to land, had engine failure & went down among the trees. In all this, no one was hurt.

We had a lucky escape at Moreton in the Marsh this morning. With my pupils in an Oxford, I was standing just off the runway waiting to taxi down it to take off. A Wellington coming to land was dropped 6 feet on to the hard tarmac. The tyres had to instantly accelerate to 70 m.p.h. – or else. Slippery grass would have given them a chance. As it was, the port tyre burst, the tube flew out, & the Wellington ran lurching off the runway in a cloud of dust. Had it been the other tyre, he could not have avoided trampling on us, as he swung to starboard.

20 June 1941

Today I was appointed to the rank of Captain, with seniority and pay as from June 1st 1941. This was most encouraging, since I have only just become eligible for consideration for that rank, having just completed the necessary service.

There was a tragic accident to one of our Ansons today. It failed to take off in the heat & flat calm in the 740 yards at Warlingham. It crashed through the hedge, killing one child and injuring two others. This is very surprising since there were only two on board & the engines did not fail; I believe there was a patch of long grass.

21 June 1941

Re the above accident; when I opened up to take the Oxford off at Wolverhampton today, I noticed both boosts were giving only +1½ instead of +2½. So I shut down, & tested each engine again – with the same result. It was an effect of the great heat thinning the surface air. But there was a reasonable wind, so we got off O.K.

Holiday last week June 1st week July 41

Marvellous hot summer weather – not even a shower of rain for a week before and a week after! Cleaned up the Riley thoroughly. Visited Mum & Dad, Sel & Pat, Roy, Ped & Jesse.

Week ending June 12 1941

Had trouble with Oxford engine in flight, for the first time. Intermittent cutting out - on two successive days. Difficult starting & poor compression on Starboard. Bit down on power. After checking over ignition, carburettor & fuel system, they decided to give it a top overhaul.

While I was on leave, Capt. Kemp's Battle taxied into a Magi, killing the pupil and seriously injuring Capt. Hampton. Next day Kemp's Battle cut just on leaving the ground. To save a crash on the railway he pulled up his wheels (only one came up) & slithered into his other Battle, parked on the edge!

On Saturday, I flew to Bristol & Southampton to collect Bosch plugs for the 4 engine Focke Wulf Condor, German built but Danish owned. On test, Capt. Hansen made a normal landing in a heavy thunderstorm behind me. But his brakes did not stop his giant & he crashed through the far hedge injuring no one. His first accident in 25 years. There was nothing he could do. Since he was facing trees he had no room to take off again. So the school lost its first and only 4 engine trainer.

Though I doubt whether it would have been much use, since it could only fly with special permission or an escort of spitfires, to guard against it being shot down as an "enemy".

Tuesday 15 July 1941

2 days leave – first under our new plan of an extra day once a fortnight.

For the first time sat as a member of a Court of Inquiry, to consider a charge of low flying made against one of our pupils by the R.A.F. police. Case dismissed.

Dodged round & through thunderstorms for two hours – Andover to Kemble.

Sat 26 July 1941

This week I've made a flight test on five successive days – and each day the stbd engine cut out after 20 mins flying on my special Oxford. It hasn't been right since I went on leave. In spite of new plugs, new carburettor, new magneto etc. the trouble got worse each time but we managed to get the motor going again either in Rich or Take Off mixture. So now they have decided to give me a new engine.

One of my American pupils, carelessly left Cambridge without noticing the time, to return to White Waltham. When he ran out of petrol after 2½ hours he landed at Yeovil! Visibility excellent.

Poor Hansen, after his first accident in 25 years with the Focke Wolf Condor, was killed this week when a Blenheim landing with one engine went through his Anson.

30 July 41

Chang, our only Chinese pilot, came in too fast and about 100 feet high over the boundary in a new Spitfire. He might have got away with it on dry ground, but his wheels locked & skidded on the sodden turf and he was still doing about 20m.p.h. when he went down a gun pit and over on his nose at the far end of the field.

Then a school Hurricane had to land with the wheels stuck up; it only came out from repairs in the hangar this morning.

31 July 41

Misty rainy trip with two good Americans to three difficult aerodromes to find – Stradishall & Wattisham. But they made a very good job of it.

Flight tested my No 1 Oxford for the sixth time today & was surprised that the stbd motor ran faultlessly. She is quite our most attractive Oxford to fly, so shall be glad to have her back tomorrow. It is not clear what was causing the trouble. But the piston rings were badly worn – probably by the clouds of dust during the recent dry spell.

We hope to arrange to use 100 octane petrol in future & higher boost, so as to improve the take off. One of our taxi pupils, evidently having flown too much recently, developed “nerves” in the bad weather this afternoon. When he arrived at White Waltham he just “threw” his aircraft on to the ground on one wheel cross wind, to the alarm of pupils & instructors alike. He ought to be sent on leave for a rest.

Sat 9 Aug 41

Flew Lockheed Hudson I today with Capt. Griffiths and did a couple of take offs & landings on a 1200 yard runway.

In flight the controls are lighter than the Lockheed 12 but it seems to me a poor sort of design. Slower than the Blenheim or the Wellington (with much more horsepower -2200 hp) and much more dangerous to land. Take off – very long run – at 46 " boost. Climb at 33" and 2300 r.p.m. Cruise at 26" & 1900 which gives 140 knots A.S.I. about 160 m.p.h.

As the wheels come up, there is a smell of burning rubber when the tyres rub against the housing. The approach with 60° flap is made at 90 knots 1200 r.p.m. undershooting. Then drag her over the hedge with 2000 r.p.m. & put her down firmly on the wheels – what a horrid shriek from the tyres. But it is the only way to stay down.

Definitely dangerous, in my view, compared with other types which fly faster & land slower, without any vices. It's the Fowler flap & short fuselage which causes the trouble.

In flight & when taxiing there is an unpleasant loud clicking noise from the hydraulics at frequent intervals. Pressure is thus maintained in the system at all times. Our system of no pressure when operation is complete seems much better. The central hand brake is inconvenient, but otherwise the controls are well laid out.

[This large gap is correct](#)

24 Sept 1941

Totting up my log book, I notice I have now done my first 1,000 hours of flying! ([actually on 12th Sept.](#))

Today George Eyston called in unexpectedly & was interested to have a trip round in the Oxford and to examine a Douglas, Blenheim etc.

There was a nasty accident last week. An American pupil was taking off in the Blenheim when the port engine lost power. (Probably the throttle position was not tightened) The port wing struck the ground & was bent up. He tried to stop but was still going fast when he struck a little wooden lavatory. The workman inside was carried along some yards, sustaining a broken leg & losing his left finger tips. Another workman was also injured & the pilot knocked out.

Sorry to hear from Jesse Hunter that the former Brooklands instructor Bembridge was killed at Sywell last week in a mist. An Oxford collided with his Moth & carried away the tail. All died.

Light relief; when one of instructors arrived in a purple Austin 7, we secured 4 beer barrels & lifted it up bodily on the pedestal thus formed.

Each day now at 9.5 precisely the C.F.I. blows a whistle & we all have one minute silent hate of the C.I.!

Romance (or the extraordinary things that happen in war): Imperial Airways today called for volunteers among our Class I & Class II pilots to go as second pilots on the Ensigns to Africa. Imagine such humble folk officially flying in the world's biggest airliners!

Our school has now expanded too much for White Waltham & the lighter types will have to go elsewhere – probably to Luton. So far it seems I shall stay at White Waltham, which is lucky.

27 Sept 1941

Fog stopped flying every morning this week. In the afternoons, I used local patches of 2000 yds to demonstrate low flying on the Oxford – 100 flaps up & 85 mph with 30° flap down. The flaps up stall is about 70 m.p.h. The trick in stalling & recovering is to watch the Trim indicator & pick up the wing which drops with opposite rudder the moment a turn is indicated.

Transcriber's note: Written up the side of the page adjacent to the above paragraph is a note which reads:- Power ON Full flap 39 indicated to astonish pupils!

I also experimented with a Hurricane slow flying this afternoon. I have been telling the pupils to use 2600 r.p.m. 140 A.S.I. or 2600 r.p.m. 110 A.S.I. flaps 30° down.

This gives ample margin since the stalling speed is 64 flaps down & 78 flaps up. I find 120 flaps up is quite O.K. & 100 flaps down.

I did not undershoot on the approach, but was too decisive with the elevator in levelling out & ballooned slightly. The Oxford (of course) needs very decisive elevator. I had no other difficulty after so long on twins. Fortunately I noticed on the second approach that the flap indicator had not moved when I used the lever. So I checked the wheels down with the hand pump (green lights were showing but six more strokes were needed to get the locks home) & then hand pumped the flaps down.

ENGINE FAILURE ON TAKE-OFF

16 Oct 41

Capt. Griffiths cut starboard engine at 300 feet 140 m.p.h. wheels up on short nose Blenheim. I held it O.K. applied rudder trim & climbed with momentum until speed fell to 110 – 115 mph. I found it most important to hold this speed exactly to gain height at all. Better to fly by attitude of nose on horizon which is more sensitive than A.S.I. Still in fine pitch (watching head temperatures) at rated boost of +3½, got to 1000 feet, dud engine in “cruise” but it did not change pitch. Reduced to +2½ to save engine. Overbanked on turn against engine; turn indicator top needle should be central to hold height. Necessary to know that hydraulic

pump is on good engine (otherwise allow time for hand pumping). Long straight approach. Difficult to know when to drop wheels. Check green lights. Apply ½ flap when overshooting. Full flap only when definitely overshooting just before the hedge.

If forced landing with both engines dead, be prepared for strong heave back on the stick at 30 feet or so. (noze so far down & not being lifted by motors).

Sunday 25 Jan 1942

After more than a week of snow & fog, the pools were behind with their work, so the Instructors went ferrying - as last winter. I quite looked forward to the change. My first job was a Botha! This machine enjoys an evil reputation among ferry pilots since it is very difficult to hold it if one engine cuts. George Kemp had not flown one before either, so he took it down to Llandow & I took it over to St. Athan. There was a very high wind down there & we discovered that it had very little lateral control on the approach at 100 Knots! It was necessary to bring a wing up with the throttles – which were spongy anyway. So George's landing was safe if not pretty.

The best thing about it was the cockpit layout & view forward.

I brought a tropical Hurricane back to Odiham at an airspeed of 250 at 2600 r.p.m. and +6 – in half an hour with wind behind. With radiator fully closed the radiator temperature never went over 80°C.

Then a Proctor to W.W. what a dreadful forward view it has landing & taxiing.

Monday 26 Jan 1942

My job today was a Wellington I (Pegasus) Brooklands to Little Rissington. Everything was in my favour – good weather & all balloons down at Brooklands. We went over in a Pratt & Whitney twin Wasp Wellington.

Mine ran up O.K. but after taxiing out, I cleared the engines to zero boost & the port would not open up smoothly. I found one mag dead but she came in again so I took off on the longest run North, slightly crosswind. No great difficulty with swing. Since Little Riss was U/S landed at Moreton in Marsh; did not hold off quite high enough, so made a wheeler bouncing gently once. Had to work quickly to keep her on the runway. By telephone, got permission to go into L. Riss. Some trouble with port motor; cleared it after 5 minutes. Landed short because of snow heaps & ice pools & managed to avoid ice damage by splinters to flaps. Waited from 1pm to 4.15 for taxi – very cold & boring in wooden hut. Anson to Kemble – then took off in a good wind with eleven up & chutes for W.W.

Tues 27 Jan 1942

Four of us instructors went to Oxford for Oxfords. Only to find they went yesterday. 2 hours to get through on phone to W.W. who suggested another Oxford to W.W. to bring us all back. But by then it was snowing & icing conditions very severe. Aircraft not ready until 2.30 C.F.I. had ½" ice on his motor car windscreen so cancelled all flying. My colleagues were kind enough to ask me to fly them so I sought advice from Scruffy Robinson ex-Imp Skipper re Icing. He took a poor view. Met at Abingdon said it would get worse. So we decided to try one circuit & see what happened – visibility about 2 miles circling 800 feet. We collected ice rapidly after take off so landed & had a tiring journey back by train. This gave us a reminder of the unpleasant side of ferrying.

Wed 28 Jan 1942

I was given a Wellington III – Hercules sleeve valve 14 cyl motors; 1400 h.p. each. But the snag was that no Constant Speed Governors were fitted to the electric airscrews so the pitch had to be adjusted manually on each. And visibility at Litchfield was given as 1800 yds. I took Hall, the technical instructor with me, for his interest since he also had never flown with these props.

As instructed , we ran up each engine to take off boost $+3\frac{1}{2}$ & set revs to 2400. This gave us only just enough power to take off at W.W. in 15m.p.h. wind facing West. As the wheels came up revs. went up towards limit of 2900 so I throttled down a good deal & adjusted pitches to 2500. After climbing & levelling out we coarsened them again to give 2500 at -2 in level flight. The gills & oil coolers had to be fairly well opened to keep cylinder heads down to 210°c & 60°c . A.S.I. about 200 – and outside temp $+2^{\circ}\text{c}$. Beyond Coventry we ran into smoke haze along Watling Street so I set up the landing condition 2500 at -3 & throttled down to 160 A.S.I. – with the horn blowing continuously. Spotted Litchfield Cathedral & found the field by flying N.E. Vis. was sufficient just to see across the field – about 2000 yds. Neon beacon working but badly placed. Lost sight of field on down wind leg so came back on gyro. First two approaches too much to right of runway. Third approach was complicated by an Anson balking me & gyro spinning through banking over 30° . Arrived about 200 yds to right of runway, so flaps (already down 20°) fully down, throttle back, steep gliding turn left & right onto runway. Wheel landing OK. One bounce. Very difficult to get stick back far enough on Wellington.

Funniest incident of trip. Hall, about to step forward, looked down through a big hole in floor. The lower hatch had blown open! P.S. It's fun climbing up a ladder into a big machine, then from lower deck up to pilot's seat. Wellington is wonderful aeroplane; excellent performance; no vices.

Thurs 29 Jan 42

Today a Merlin Wellington II. Cross wind take off between balloons at Brooklands. Only just got out over the banking with the boost override out at $+7\frac{1}{2}$ and 3000. Next time will open up faster & consider opening farther before relaxing brakes & using 5° flap. I had to open gently because I did not know how much she would swing. Unexpectedly was blown bodily sideways at 60 mph on icy ground.

Very comfortable ride to Lyneham at 1800 zero boost in Weak at about 170 A.S.I. Pitot heater on. Hot air intakes on. Radiators closed. Cross wind landing among Oxfords on grass. 80 mph gave very short hold off (slightly shock stalled) 3 point landing. Next time with Merlins will 85 if (wind or run permits) & keep trifle more power on for flattening out. Also start checking glide a trifle higher. Today it was raining with ceiling of 800 feet. After taxiing on to perimeter track, brakes failed & I promptly cut the switches to avoid collision with Lysander. Noted 90 lbs pressure in bottle but none going to wheels. Restarted on aircraft batteries & swung her off road on to grass.

DIARY NO. 2

INSIDE FRONT COVER

Diary No 2

April 1942

To March 1944

24 Oct 42 appointed Flying Technical Officer

later Chief Test Pilot

29 April 1942

Today a gale of wind made instructing unsatisfactory, so I got the chance to fly on a four engine bomber for the first time. The crew was Capt. Whitehurst (skipper) self (2nd pilot) & Flight Engineer.

We collected the Halifax II at Radlett & delivered it 190 miles (north of York) in 58 minutes. Ground speed 200 in a 55 m.p.h. beam wind (easterly). Total time 1 hour 20. I flew it 1 hour.

There is quite some pomp & ceremony in starting up, taking off & landing such a 30 ton monster. The skipper goes aboard with his documents, after his luggage has been loaded & engines started by mechanics. He climbs to his seat (18 feet above the ground) & is advised "All hatches secured sir". Next "Engines warm enough sir". Then while the engineer watches the temperature & pressures, the engines are run up each in turn, starting with the port outer. "Ready for take off sir"

The skipper opens all four up to 2500 r.p.m. before releasing the wheel brakes. Then he checks the swing by leading with his port throttles. When all throttles are wide & the Merlins giving their 5000 h.p. in one glorious song, the second pilot clamps the throttle friction. If "Emergency" is ordered, the second pilot lifts the gate, unclamps, pushes all four through the gate to get +12 instead of +9 & clamp again. Skipper lifts wheels, builds up speed to 140, & calls "2650 & +4". 2nd Pilot sets up this power with 4 throttles, 4 boost gauges, 4 Propeller pitch levers, & 4 double – hand sensitive rev counters. On reaching cruising height, Skipper calls for "2400 & +2 in weak which is similarly adjusted. A.S.I. 190.

It is very pleasant to synchronise engines on each side by looking through the props at the "interference shadow" & bringing to rest.

I found the Halifax much quieter than the Wellington in spite of twice the power. Much smoother. When one engine is run up to full power there is no vibration – only a distant organ music. A much more rigid structure. Very convenient cockpit. One can look back into the engineer's cockpit & view his forward facing panel, where he controls temperature, fuel, emergency hydraulics etc. The flying controls are no heavier than a Wellington & the three trimmers are much more effective. Most excellent repeater compass, locked except for $\frac{1}{5}$ second every 2 secs. Has all the advantages of a gyro & magnetic compass, with none of the disadvantages of either.

On the approach both pilots work as a team, the skipper ordering the power he wants until the final approach when he takes the throttles & brings her in about 110 – 120 m.p.h. On crossing the hedge, second pilot puts all four airscrews into fine; on touch down he holds all throttles shut; at end of run, lifts flaps & cuts off two inboard motors. The machine is taxied away on the outers only.

Interesting detail: the radio operator's cabin is immediately below the pilot's cockpit; a real two decker!

(We had a good look at York which the Huns had bombed the night before. Worst damage seemed to be to the Railway Station & marshalling yards).

30 May 1942

I arrived at the aerodrome looking forward to a final day's work before going on my annual leave for 14 days. It turned out to be more exciting than I expected.

A fortnight ago, I was feeling pretty jaded & needing my leave, but this passed off as the leave grew closer.

The first news was that all our Oxfords were grounded – an unprecedented event. The night before Capt. Greenhalgh was taking off & just airborne when half the elevator blew off! The other half dangled uselessly & the stick went dead in his pupil's hands. They went back on the ground at about 80 m.p.h. 200

yards before a row of parked Harvards. So he cut throttles, lifted the undercart lever, switched off, braked hard. The starboard leg only came up, the wing went down & they swung right & stopped with 5 yards to spare.

Examination of the wreck disclosed that each half of the elevator rides on three pins just like a field gate. The only thing which stops the elevator sliding off the horizontal pins is a single quarter bolt which secures the two halves together. And this bolt had broken. What good fortune it went when it did & not one minute later.

So no more Oxfords were to fly until this bolt had been examined.

Therefore I had the chance to fly with Capt. Kemp on the acceptance test of the first Beaufort to come on to the School. It is to be used for 4+ work with the Hudsons. I wanted this because the Beaufort has an evil reputation – the characteristics if one engine fails are said to be deadly.

Hence George Kemp took off with even more than usual care – I was operating the undercart, flaps, throttles & pitches. We got our safety speed of 125 knots in about 2000 yards from rest (no wind) & climbed to 3.500 feet for the single engine tests. George throttled back the starboard very gently & found the rudder would hold her at the recommended power 2800 & +1. But she lost height until we put the dead prop into coarse, which gave us a slight climb. I suggested that on the next trip at a suitable height, we should cut one motor at 100 knots, first at cruising power 2100 and -3, then at climbing power 2800 & +2½, finally at full take off power 3100 +4½. But we were not able to do this today – for lack of time. It will be very instructive to see what happens. This machine would not fly at all on one motor until they extended the trailing edge of the wing in a curve behind each motor nacelle.

The engines were Bristol Taurus 14 cyl sleeve valve, 1,065 h.p. each. Very small diameter compared with the prop size. They must not be operated between 2550 & 2750. Crankshaft vibration I suppose.

The worst feature of the machine is the cockpit layout which is even more messy, confused & awkward than the Blenheim – (which I had not thought possible, & for which there is no excuse these days). Then its single engine performance does not compare with the Blenheim; moreover, the ailerons are very stiff & comparatively ineffective approaching at 85 knots. The best feature is the view which is much better than the Blenheim & equal to the Oxford.

After lunch, no Oxford being available I borrowed a brand new Anson for navigation instruction. As we were winding up the wheels, we had them nearly home, when the handle broke off in my hand at a poorly welded joint. It is the only means of raising or lowering the undercart & I did not want to ruin a new aircraft with a belly landing.

So we continued with our trip down to Southampton Water & Thorney Island, coming back on an estimated course & time (without map reading) so as to give the pupil confidence in his watch & gyro. I allowed an hour's petrol at the finish to give us time to get the wheels down. We managed the 156 turns, half a turn at a time in about twenty minutes. I pushed a pencil into the broken tube & gripped that with my handkerchief.

23rd June 1942

Today I had my first solo Whitley – and it proved more exciting than I expected!

It was a priority job from Netheravon – very hot weather with summer haze giving visibility about 4 miles, with no wind.

The take off was very easy – no noticeable swing opening up steadily. But the west sun is over a hill top so it is impossible to see whether one has a clear path. The first I noticed as I crossed the hedge – the airspeed indicator was stuck at zero. Fortunately it worked normally about 5 minutes later. Then I had difficulty in synchronising the motors; the starboard pitch control was unresponsive. I tried several different settings only

to find the revs. kept building up – even with the pitch lever in full coarse. Finally I had to throttle it right down to -4 to keep her below 2600. So the good port engine was doing most of the work and the oil temperature was over the 90° limit. So I turned back to Colerne & did not lower the wheels until I was on the crosswind leg. I deliberately made a somewhat overshooting approach to avoid losing speed if the A.S.I. went out again or one engine finally went out – and pulled off a very pleasant touch down with a good pull back on the wheel.

The odd thing was that when I parked the machine & ran up the stbd engine again the pitch control worked normally. The sergeant fitter at Colerne accordingly said the machine was serviceable. But I did not agree that it was sufficient to reach that conclusion without checking the various parts of the system. So I left it there for a more thorough investigation. It was a priority job but I did not want to break it when I knew what it was like in the air.

She is a ponderous thing to fly, heavy on the controls, but has no vices. She would be hard work on a rough day. Layout of ancillary controls, petrol cocks etc very good. Dashboard not quite so good.

25 June 1942

Flew Beaufort solo today for the first time – on an acceptance test. Quite pleasant take-off & landing. The single engine characteristics being so infamous, I tried throttling one back at 3000 feet. At cruising power & speed, the swing was difficult but not impossible to hold until the dead prop was put into coarse & rudder trimmer applied.

Repeating the experiment at climbing power (& not take off power) & climbing speed, it was impossible to hold her. Hence it would be necessary to cut both, hold the speed, coarsen dead prop & apply rudder trim & throttle open progressively. Probably one would lose 1000 feet at least doing this, especially if taken by surprise.

Flying on one engine, I found the rudder trimmer had jammed on, so we had stay on one motor until the Flight Engineer was fortunately able to free it.

16 July 42

I was delighted to learn today that I was the first of the instructors to be selected for the four engine course (Class 5 we call it). So I went with old friend Dlugaszewski & watched his pupils work for two hours, then flew one circuit at Cheddington. Dlug himself had difficulty in landing it crosswind on the 900 yard runway at Leavesden.

19 July 42

Two circuits on the Halifax today, then Dlug decided the runway was too much out of wind to permit instruction.

21 July 40

My first four engine solo!

Three dual circuits took an hour, the Dlug gave me 55 mins. flying on two inners alone, then two outers, then with one outer stopped. I was lucky enough to make a decent landing on three engines, keeping wheels up (rudder trim not used) until facing the runway & overshooting slightly all the way until definitely into the aerodrome. So then I was sent solo for three landings. The first was on the wheels through not trimming tail heavy on the final approach. The next two were better. My Flight Engineer (Lees) ran the engines perfectly & carried out every order with slickness & precision. His synchronisation of the engines was exquisite.

My strongest impressions of the characteristics of this monstrous machine are:-

1. When taxiing, it is necessary to check a turn half way round by opening up the inner engine & giving at the end a touch of brake with appropriate rudder.
2. It's easier to taxi on the two outers only, but Dlug thinks it kinder to the motors to use all four.
3. At take-off the machine must face exactly straight with oneself in the exact centre of the runway.
4. Before opening up (leading with the left) all engines are set to 1500 or 2000 r.p.m. flap 20° down trim 1½ tail heavy.
5. Until she reaches about 30 mph, keep her exactly straight with touches on the brake.
6. Then concentrate on keeping straight with the rudder. The throttle linkage is too cumbersome to permit of accurate steering on the throttles.
7. When throttles are fully open shout "lock" to Flight engineer & bring stick steadily back & lift off about 90 m.p.h. U/C up.
8. Shut down to climbing power and at 600 feet take off the flap, return flap & undercart levers to neutral.
9. It is remarkable how little the elevator trim (which is powerful) is required to meet changes of power, flaps or undercart.
10. When applying aileron to lift wing, hold it on firmly but take it off instantly & quickly when machine is level.
11. Since she weighs 43,000 lbs (19½ tons) as we fly it, the momentum is such that the airspeed does not immediately respond to the attitude of the machine. Hence the attitude is adjusted & then later the A.S.I. is checked.
12. With wheels & flaps down the gliding angle is incredibly steep; hence she needs 2600 & - 2 on all four engines to make normal approach at 115 m.p.h.
13. The momentum being so great, it is essential not to make any corrections below 500 feet, otherwise a bad landing results since the movement once started cannot be checked readily. So get the machine exactly set above 500 feet. On an ideal approach, the throttles should not need altering from 1000 feet to 100. Nor should any large movement of aileron or rudder be made.
Flap is put on in three stages. 20° crosswind, 50° into wind at about 1500 feet. Full flap at about 1000. Then -2 boost. Engines are set to 2600 before undercart is lowered.
14. In levelling out, (have her trimmed tail heavy), throttles are brought back first a little at 100 feet, then more again a little at 50 feet & stick back a little.
When level and descent has ceased, shout "Close Throttles", bring stick back steadily right back & hold it. (But I want to try leaving the final closing until the touch down is made. I think this will get the tail down better & make a softer landing.
15. It is this levelling out, where one feels the controls are very heavy. If once this big fellow starts to drop, she keeps right on going!

31st July 42

Today I delivered my first 4 engine job. It was hot, no wind, summer haze gave a visibility of about 6 miles generally; $\frac{5}{10}$ at 4000 feet. Near Doncaster the haze gave only about 3 miles and I flew under 1000 feet to see my check points.

The machine was just completed at Radlett & I took off towards the North on the grass. +12 boost. During the take off severe vibration occurred which I surmised might be the starboard outer engine. However, as the wheels came up I applied the brakes which stopped it – so it proved to be an unbalanced tyre.

Flight Engineer Gardner was very efficient & he had a pupil engineer Seaborne. 900 galls. Fuel we levelled out at 2000 feet & cruised at zero boost 2000 r.p.m. in “Weak” which gave us an airspeed indicated as 150, G.S. 160. We reached York in a minute under the hour at 1000 feet & made Eastmoor 2 mins. later. On my circuit I increased power to +2 & 2400 & climbed to 1500. From this height it was very difficult to see the runway through the haze from a distance of 3 miles.

The runway was 1600 yards bearing 180° so I went North & put my wheels down, then turned on 270° ordered 20° flap, reduced power to -2, since there was no wind & we were in an overshooting position. The turned in on 180°, gave 50° flap on seeing the runway, closely followed by full flap at 115 m.p.h. at about 1000 feet.

The touch down was satisfactory – no bounce, although on the wheels & the oleo legs pumped up to 10” for operational load. If I had trimmed her back to mark 4 it would have been almost certainly a three pointer. Stopped both inners, but in taxiing fully 3 miles round the perimeter track, my brake pressure went pretty low, so I restarted the port inner to maintain it. My pupil Murtagh collected us in his Oxford; he said we passed over him south of York – which is a tribute to his navigation & mine! Home at W.W. at 7 pm – in 1½ hrs.

6th August 42

I delivered another Halifax today – to Pocklington – east of York. No Oxford was available so I took two refresher course pupils over to Radlett in an Anson arriving 11 a.m. The Halifax had developed a boost snag, so while we were waiting I instructed the pupils on the Anson on our instrument assisted approach. Lunch at the Directors expense & we eventually got away at 2.45.

There was no wind. $\frac{10}{10}$ at 4000 – a dull sort of day; visibility mostly 6 miles but about 3 miles in the lee of Doncaster & Sheffield.

I had the same flight engineer Gardner. Over lunch we agreed the team work to be carried out on take-off, (He was to check the revs. on take-off) and it worked like clockwork. We had 2000 revs on all engines before releasing brakes; I let her roll a few yards then opened up about half way & let her gain speed, then steadily wide open leading all the way with the left. This kept her beautifully straight & she got off easily (through the gate +12)

I ordered “Wheels Up” & immediately “+9”. When the undercart was fully up & we had 130 A.S.I. I gave “+4” “2600” At 600 feet “Flaps UP” followed by “+2” “2400”. We levelled out at 2000 feet & cruised at zero & 2000 r.p.m. in “WEAK”. This gave us a ground speed of 150 m.p.h.

An hour later near Goole, I handed over to my pupil for five minutes while I walked aft & christened the lavatory.

I lowered the undercart at 2000 feet a little too early on the crosswind leg & so had to increase boost from -2 & 2600 to zero and 2600 (20° flap down), to reduce the rate of descent. It would be unwise to lower the wheels on the downwind leg! – as is normal with most other aircraft.

As a result, I turned in a little late & had to turn more than 90° to face the runway but I got her straightened out & 50° of flap on about 500 feet. Then -2 & full flap.

I crossed the aerodrome boundary at a comfortable 90 to 100 feet and did not order throttles “Closed” until she was level & I was sure all descent had ceased. I had her trimmed tail heavy so managed a decent touch down. But she swung right & the brakes were slow to bite but fortunately the swing was corrected & we stayed on the runway. The landing did not feel too good, but my pupil waiting in the control tower said that the chaps there remarked that it was a real three pointer. So it must have been quite good, for this was an operational station & they know what’s what. My pupil is a 4+ pilot anyway & he confirmed it was a three pointer. It is the impact of the stationary wheels which gives a jolt inside. I don’t see how this can be avoided on dry concrete. Grass would act as a lubricant. And with no wind, the touch-down is bound to be fast: We used about ¾ of a 1400 yd runway – using brakes only to check swing. I imagine if one of those great wheels touches just before the other (with no wind to give rudder control) it’s bound to start a swing. Anyway we did not swing off the runway.

Home in 1½ hours giving single engine instruction en route – with no dual controls. After a practise force landing, the tail trimmer of the Anson jammed fully back as we found out when we opened up at about 100 feet. So I trimmed ship by ordering two men forward into the nose, then we were able to free it at leisure. We practised slow flying at 75 m.p.h. 30° flap down. The Anson climbed at 80 m.p.h. at +1 with one engine throttled back & five up!

Sun 16 August 42




This morning I finished the present refresher course. Last night nearly all the Pool pilots were stuck out in bad weather. One – Avery – whom I knew at Croydon in 1933 – jumped out of a priority Spit by parachute.

Only twice before has this happened in the A.T.A. So I got myself a Halifax this afternoon. It was the 300th built at Radlett, so the workmen came out on the tarmac to cheer our departure & wave us good-bye. It was a perfect machine. And so was the weather.

It was a short trip of 40 miles to Gravelly near St. Neots. No wind. We made the nicest touchdown I’ve ever done with a Halifax. It was sweet. And she stayed precisely in the centre of the runway without any brakes, coming to a stop nicely before the end of the 1400 yds. I had given her a short run at 2600 and +6 finding the airspeed to be 200, which is not a lot more than her 150 m.p.h. at the low power of 2000 & zero boost.

Tues 1st Sept 42

My fourth Halifax today – to an aerodrome south of Hull. It was my engineer’s first Halifax & he was being checked out by F/Eng Instructor Lines. Got off the 900 yd runway with a light wind dead ahead at +12 boost with 20° flap. Good weather. Very satisfactory landing; it would have been 100% but I got my trimmer back before crossing the hedge.

Note: When turning in to a runway, turn in good time; it’s easy to go too far before making the final turn in – owing to the “optical effect” One moment it looks like this , then , then . This requires a turn to the right with opposite bank. If one turns a fraction too soon, it only means reducing bank & rate of turn.

Note: Considering how much power is required to avoid undershooting in a light wind, & the undesirability of having to open up on the approach, one must guard against undershooting in a strong wind.

4 Sept 42

My first MOSQUITO – the world's fastest twin engine fighter, a delightful machine, beautifully balanced controls & trimmers. Very smooth running & quiet. Very easy to fly, in spite of its tremendous performance. Excellent on one engine.

But it was the highest stalling speed I've ever heard of 120 m.p.h. flaps up & 112 mph flaps down. So it needs a good long run to take-off & to land. The take-off run can be reduced by putting on flap (just before opening up – to make sure they come down equally) Approach speed is 125.

The take-off at Hatfield on a fair wind was long but normal, using full boost +12. She climbed brilliantly at 180 m.p.h. +6 & 2600 r.p.m.

Levelling off she accelerated rapidly to 280 m.p.h. & did 300 m.p.h. as soon as the noze was put into a shallow descent.

I then shut down to zero boost & 2000 which gave 220 m.p.h. Changed over from outer to inner tanks, closed the radiators & went into "weak". She reached St. Athans in 40 mins against the wind. 400 gallons is the normal fuel load & normal economic cruise uses 45 galls per hour per engine.

Excellent forward view made me feel more at home in her than in a spit. Probably because I've done about 4 times as much time on twins as I have on singles. But of course the Spit lands 40 m.p.h. slower.

Before lowering the wheels I put the revs. up to 2600, then throttled down to 150 m.p.h. – a la Halifax. This was a mistake. I think it would be better to drop the undercart, then increase rpm & lift the noze by putting on 30° flap in stages, then open throttles as required.

If one sets 2600 first, one has to throttle down a lot to slow up to 150 m.p.h. then when the wheels & flaps 30° down, one has to give about +4 to maintain height at 140 m.p.h. In brief, this involves throttling well down & then well open.

The actual landing pleased me; the moment one closes the throttles, she sits down & stays down. I was surprised to notice that at 2000 feet the speed of 300 m.p.h. did not appear to be specially fast; although it is nearly two years since I flew much at that velocity. It must be that I've got so used to 150 m.p.h. that one can now cope more easily with the quick jobs. Especially after a lot of hours low flying in poor visibility at 150 or so.

But one did feel the "G" in quite modest terms at 300 m.p.h. even 40° bank gives one a good firm push down into the seat.

16 Sept 42

Five landings today with my fifth Halifax. Lovely weather; wind 30 m.p.h. from 310°n Smooth take off at Leavesdon across the runway. I had one navigation pupil (an American girl) & 2 engineer pupils with engineer instructor Lies For his benefit we did four circuits at Polebrook. Passed out both engineers.

Considering that the runway was at least 20° out of wind, my landings were satisfactory – the first was the best. I tried one using only 60° flap – O.K. We cruised North after that at +4 and 2000 in "weak" which gave a pleasant 170 m.p.h. For the first time in my experience, I deliberately stopped an engine in flight by feathering the propeller. Very simple & quick. The starboard inner being stopped, I opened up the starboard outer to equalise and there was no need to touch the trimmers. The blades locked very hard & flat in the feathered position. Unfeathering was equally quick. Throttle ¼ open, petrol on, ignition on, pitch fully coarse, press the feathering button & release at 1500 r.p.m. We did this three times for practice.

Polebrook is an American Station (Flying Fortresses). I was much impressed by the genuine friendliness & helpfulness of all ranks – from the “Jeep” driver who drove us to the Officer’s Club to the officers therein. I was also impressed by the quantity of rationed foods which were served at lunch. I was much touched by the courtesy & generosity of an American soldier who gave my pupil & I in the most natural way two packs of American cigarettes & three cigars! And would not accept any payment – saying that they were given to him, and he did not smoke.

The whole atmosphere of the camp was so different from a R.A.F. station. One could imagine oneself in the U.S.A. For example, in the Officers Dining Room they had printed the name of each town bombed on the wall. In the Ante room was an ever more astounding decoration. One wall was covered with an almost life-size scene painting of an old English castle – like a stage set. An enormous banner flew from the battlements announcing “Here’s to the Huns – great fighters” & “Here’s to the 79th – their masters!”

Imagine the consternation of R.A.F. officers if they found such a thing in their mess!

11 October 1942

My sixth Halifax was a perfect one – from Radlett. Weather brilliantly clear with $\frac{3}{10}$ at 2500 feet. N.W. wind about 25 m.p.h.

On the run up, the starboard inner developed a leak in one radiator which they changed in 1½ hours. I had two pupils and in placing them in the best positions to see the take-off, I omitted to set my gyro compass & altimeter with my HTTMPFG.

The take-off was to the North, at least 45° out of wind, because there was a Halifax on its belly on the N.W. runway.

I had not previously taken off so much out of wind (and wind on the wrong side, the left) so I expected difficulty & was worried about swinging left into the crashed machine. Thinking about this I did not (a) Run a yard forward to straighten the tail wheel & stop. (b) Release brakes & let her roll a bit before opening up. (c) Keep her straight with touches of brake, until she was up to about 20 m.p.h.

I attempted to check the anticipated big swing by steering with the throttles - which was alright but not very neat below 40 m.p.h. Above 40 m.p.h. the swing was easily controlled.

During the trip we practised feathering the stbd inner & then the outer. With the outer stopped, she could be held straight by opening up the inner, without touching the trimmer.

My first approach was blocked by another machine; I had only 20° flap on, so it was easy enough to go round again.

My second approach was quite smooth but I was worried by (a) wind 30° across the runway (b) An Oxford standing ready to take off (c) A house right at this end of the runway. As a result, I crossed the house a might too low for comfort & with my speed about 100 – 110 instead of 115 m.p.h. This prevented me from getting a chance to wind my trimmers tail-heavy. This undershooting tendency resulted from (a) the strong wind on this exposed aerodrome (b) having reduced to 2600 & -4 at 1000feet, I delayed giving full flap until down to 400 feet. It would have been better to continue & land with only 50° flap. Or to leave -2 boost and giving full flap at 1000 feet.

As I have noticed before, it is very easy to undershoot with a Halifax in a strong wind, & one is reluctant to open the throttles since this makes a good touchdown practically impossible. As it turned out, my touchdown was a light touch on the wheels, she then went up a foot or two – I got the stick right back & she sat down o.k. Slight tail wheel shimmy & then she tried to swing right into wind. The brake & full left rudder kept her straight & on the runway.

4 +Pilot Villiers who saw the landing, remarked to me that it was perfect. So it must have been better than it felt inside.

24 Oct 1942

After almost exactly two years of instruction I took up my new appointment today as Flying Technical Officer. When the Chief Instructor told me that he had been asked to release me, I felt very flattered – and more so, when he said that he wished to retain me, but would not prevent me going if it was my desire. He added that I could return to instructing if I ever wanted.

So I replied that while I was happy in the School, nevertheless the F.T.O. job was most attractive and I felt I could do with a change, having been instructing longer than anyone on his staff except R.G.Kemp.

That was a week ago: so I trained my successor F/O Gilbert – ex-bomber pilot - & joined the Technical Dept. today.

It seemed a strange throwback to peacetime to have a desk of my own! My new Chief Capt. Moyer spent an hour explaining the work of the dept. & my responsibilities. Then I did the acceptance tests on three Fairchild's.

This afternoon the two Miles brothers brought the M28 for test. It was the prototype in unfinished form. The A.T.A. is considering ordering it in quantity for taxi work, with any modifications we want. I went round in it with Mr.Miles & then took Bob Morgan. We were persuaded by it; it feels so right & has the finest view of any single engine aircraft; and an outstanding performance for its power; no vices so far discovered.

One Gypsy Major, it carries four people at 130 m.p.h. (2½ hrs. range) climbs 600 feet per minute at full load. Stalls at 45 flaps down 65 flaps up, Undercart retracts by hydraulic hand pump. Very ingenious Fowler type flap.

Bob Morgan said it was the first machine that really gave him confidence & the desire to fly solo.

10.11.42

This last fortnight I've had several interesting jobs:- (a) Testing stalls on a Mustang. Found it stalls very like a Harvard - over a hole in clouds near Woking at 4000 feet: Delivered to Gatwick in a mist giving 2 miles vis. Not so nice as a Spit. (b) Ferried my first high powered tricycle. Douglas Boston III 3,300 h.p. to Cosford. Very fast, very easy to fly on one motor. Simple touch down but difficult to keep straight owing to powerful hydraulic power operated brakes – toe pedals lack feel, progressiveness & smoothness.

(c) Various flight tests of Fairchild's, Hurricane., Ansons (with cabin heaters on exhausts which spoil the single engine performance) & my first Halifax take-off & landing at White Waltham. The grass was very wet, the wind light – but I had the longest run (1100 yds) – and she came to rest surprisingly easily in about 900 yards with very little brake, crossing the hedge at 105 – 110 m.p.h.

(d) My first circuit on water!

I'd not flown a Walrus amphibian before. I found it rather more tricky than the Grumman Goose since it is more top heavy & the rudder is abnormally sensitive on land power on. Admittedly we were completely cross wind on the runway, which made it worse.

On the Solent, waves about two feet high light wind, we made four landings & take-offs. The landing was easier under these good conditions than on land. Even power off at 65 knots approach – as for a force landing. The angle of descent is not steep, since there are no flaps, no undercart & no constant speed airscrews. The hold off is normal & the touch-down must be in a level attitude – or only slightly noze up –

not 3 pointer. After touching, the stick must be held firmly back. The water drag produces rapid deceleration.

The take-off on water requires a special technique & more run to get up speed than on land. To start ailerons are put hard over to the right, the elevator is given a steady backward pressure all the time she is accelerating.

At about 100 feet, the engine was cut on take-off, & a landing straight ahead was made with no great difficulty on water. My instructor was pleased by this, & the fact that I had quickly got used to operation on water, & was prepared to send me solo.

The last time I flew a “pusher” was the Douglas Engine (17 h.p.) Kronfeld Drone at Brooklands about 1934 or 1935!

Nov 1942

Actual date from logbook – “18th Nov 1942”

“Emergency” flying scheme came into effect today to catch up with arrears, after the recent bad weather. I had a Halifax V (Dowty undercart) from Radlett to Speke. We had to fly at 1000 feet most of the way under ¹⁰/₁₀ cloud but good visibility.

However the N.W. wind carried all the smoke of Liverpool over Speke, so when we got there we found vis. not more than 2000 yds & ¹⁰/₁₀ at 1000 ft. I did two dummy runs wheels up along the runway & found the gyro was precessing about 20° during each circuit. The D.R. electric compass was u/s. however, I wanted to attempt a landing on the “Watson” method with much larger machine, i.e. approaching a runway on the gyro, without being able to see the runway in the descent – as taught by me on the refresher course in the Oxford.

It worked out very well, but just as I was entering the aerodrome at 115 m.p.h., they raised the jib of a 100 foot crane right at the start of the runway! I lifted my wing over it & shouted for full power, then wheels up. It was very tricky going round again since I had to turn at about 200 feet at the N.W. end of the runway to avoid going straight into the balloons.

My next approach, I had to make high to clear the crane, which made it probable that I would land too far up the runway (not more than 1500 yds. long). This led me to cut the power before the hold off was complete, so the landing was a bit heavy, but otherwise satisfactory.

When I complained about the crane in the operations room, the Duty Pilot said “What crane?”

26 Nov 1942

Interesting juxtaposition of tests today. One of the slower machines followed by one of the world’s fastest. A Taylorcraft (called Auster in the R.A.F.) was first with a Cirrus Minor 80 h.p. Very short take-off, very steep angle of climb at 55 m.p.h. Cruise 90m.p.h. at 2000 or 103 m.p.h. at 2200. Consumption 4½ galls per hour. Approach at 50 m.p.h. power off – then brakes on, gives very short landing. Stall 36 m.p.h. – holding stick back & rudder central, she just drops her noze, gains speed, lifts her noze & stalls again – ad infinitum.

Then a Spitfire 1X with Merlin 61 & 4 blade prop. 16 lbs boost on take-off – if you get through the gate. Simply marvellous to fly, sweet as a nut. She was doing 285 m.p.h. at Maidenhead from rest at White Waltham. 90m.p.h. power assisted is quite fast enough on the approach.

I then tested an Anson & a Fairchild.

29 Nov 42

A bad cold kept me in bed yesterday, & today it was not much better but the Marauder had arrived for me to handle, & the weather was fine, so it was an opportunity that was not to be missed. The Marauder is the Glenn Martin B26 medium bomber fitted with two Double Wasps of 2000 h.p. each – the most powerful air cooled engines. The props are Curtiss Electric 4 bladers with welded steel hollow blades & a very small ground clearance.

At first sight she seemed as long as a Wellington in the fuselage, which was well streamlined & flush riveted. But the wing area was tiny. Capt. Chase told me that on take-off at Prestwick he had only just staggered off the ground. (wing loading is around 50 lbs per square inch.) So he made the first take-off at Hampstead Norris (1100 yds 20 m.p.h. wind) & I worked the throttles etc. She got off a bit better by raising the noze wheel at 60 m.p.h. & unsticking at 105 m.p.h. (600 galls aboard). He made a good landing from an undershooting approach on the 1400 yd. runway at Newbury. We changed over. I found it easy enough to taxi this big tricycle with its good forward view. The brakes were the sweetest most powerful toe operated I'd met. Cockpit layout neat but complicated by tremendous number of electric switches. Instrument layout poor; 1 boost gauge with one scale but two hands; rev. counter the same. This made it difficult to synchronise motors for one had to check which hand referred to which engine.

My first take-off was spoilt by underestimating the left swing. And by attempting to steer on the throttles below 20m.p.h. This caused me to swing left & right below 40 m.p.h. & to accelerate along the left edge of the runway. At all speeds and powers up to & including 200 m.p.h. the machine flies in a very noze up attitude. This foxed me on my first circuit & cause me to lose height with the wheels down. She was sinking in a noze up attitude. As a result the approach was definitely undershot – at a speed of 135 m.p.h. – which is the highest I've ever had to use. But the touchdown was satisfactory.

The second take-off was o.k. I straightened her up carefully, then opened up a little – just leading with the left & kept her straight with touches of brake up to 20 m.p.h. When she was just rolling steadily straight, I dropped my toes off the brakes & opened up steadily to 45" & was able to steer with the throttles. There is not much rudder control below 60 m.p.h. I had the stick so firmly back to lift the noze wheel at 60, that I failed to let it go forward to vertical as she accelerated. So she came off momentarily at 80 – 90 m.p.h. in a semi stalled condition & sank on again. The trick is to go forward once the nose wheel is up so as to maintain a constant attitude then lift her off at 105 m.p.h.

We tried the performance with stbd. engine throttled back at about 160 m.p.h. then made a peasant landing rather cross wind at Thruxton. On touching down, I kept the noze wheel up by bringing stick steadily back. She kept straight on the rudder & after noze wheel was down & some speed lost, then the brakes brought her comfortably to rest: Definitely an aeroplane for long runways!

4 Nov 1942

Actual date from logbook – "4 Dec 1942"

One ambition was satisfied today – I handled the Schneider type of Rolls Royce Engine, which years ago I used to worship in George Eystons' cars & Campbell's motor boat; (The Water Speed Record on Coniston was my last big publicity job before the war)

This engine has been developed into the Griffon and is 36 litres against the Merlin's 27. It is installed in the Spitfire XII & the two great cylinder blocks produce two humps on top of the cowling. The reduction gear being epicyclic type, the propeller boss is lower & necessitates a smaller prop (4 blades). The result is that

on take-off one cannot go beyond +8 boost until the wheels are up – or the swing becomes beyond the control of the rudder. Moreover she swings the opposite way to the Merlin & needs a lot of left rudder. This torque effect makes an approach with power on at 95 unpleasant, and it is better to come in at 100 with slight power assistance. This also gives a rather better forward view by lowering the noze a trifle.

My first take-off (with 1,750 h.p.) was o.k. but High Post is dome shaped & one cannot see over the crest in the middle. So I was glad they'd hoisted the red flag to clear the field for test flying. The run required is longer than the Merlin Spits since one must pour on the coal discretely.

With clipped wingtips the aileron control in flight is amazingly sensitive, decisive & powerful – which makes her very suitable for high speeds low down – which is her job. 355 m.p.h. at sea level, over 400 at altitude.

I made my first landing on the runway at Thruxton with no undue difficulty. The brakes seemed to lack power, but this is doubtless due to the fact that this Spit (like the Spit IX with Merlin 61) is 1000 lbs. heavier than the early Marks. Test Pilot Quill said "It's like having five extra chaps aboard!"

I then checked A.T.A cruise zero boost 190 r.p.m. = 250 m.p.h. and flew slowly along a railway at 120 m.p.h. flaps down.

Then three circuits at High Post to get used to the take-off.

[This note appears at the top of the next page in the original diary "See Previous Pages for Nov 1942 4&26"](#)

9 Nov 1942

[Actual date from logbook – "9 Dec 1942"](#)

Mr. George Miles called in today – to ask if I'd like to fly the M38! This a slow flying job designed for artillery spotting. It has Gypsy Major, and an M28 fuselage. A big lift flap rather like the Junkers "double wing" & a separate drag flap. The wing is bigger than the M28, undercart is fixed & taller with 9" travel.

The take-off run is ridiculously short – not more than say 50 yds with a light load & some wind – was all that was used at the first attempt. No doubt Mr Miles can reduce that with his experience on the type. The angle of climb is extremely steep at 55 m.p.h. lift flap down. Mr Miles says it is steeper at 45 m.p.h.! One can reach at least 5000 feet in 900 yds! The stall occurs flap down at 36 m.p.h. & is not quite so fool proof as the Taylorcraft in that a wing does drop, but is easily recovered.

The great advantage over the Taylorcraft is the view (which is wonderful for a single engine); The comfort and good internal finish & appearance, and the disposable load (about 1000 lbs). She cruised at about 100 m.p.h. but Mr. Miles expects to make the lift flap fully retractable into the wing section & thus put the cruise up 120 m.p.h.

With all flaps down & power off, she sinks on a steep angle of approach, with noze about level. A little power on reduces the rate of sink, & still gives a steep angle of descent. After touchdown I found these particular brakes not so powerful as the Taylorcraft toe brakes.

What a useful machine for the private owner – quite independent of aerodromes – you could almost go to the cinema on it!

10 Nov 1942

Correct date from logbook – “10 Dec 1942”

My first 2000 h.p. single seater today! 2060 to be precise at 3700 r.p.m. & +7. My first Typhoon, first 24 cylinder engine.

The only snag was that it was to test after a new engine had been installed by a R.A.F. crew who had never before seen a Typhoon or a Sabre engine!

This engine is tricky to start, but she was warm & I got her going with 1 dope & 2 cartridges. As soon as she fired, I had to give her 4 or 5 more dopes steadily to keep her running. Quite a lot of precautions have to be taken before an attempt to start is made. The machine should face the wind & have no aircraft etc. behind it. Eight large lumps of concrete are used to hold the tail down, & extra large wheel chocks are fixed to the ground with iron stakes about 3 feet long! No man must lie on the tail – since he could not breath in the slipstream. Fire extinguishers must be to hand.

The engine ran up O.K. but threw a lot of oil on the screen, so after taxiing to the take-off point & clearing the engine, I opened both windows & wiped the screen before take-off.

On the rough ground at White Waltham the take-off proved to be the most difficult part of the job. I opened up steadily to reduce swing & left the tail down to keep the prop tips off the ground. At about 60 m.p.h. she started to pitch on the bumps but got away OK. Wheels came up OK. & we climbed at 200 m.p.h. finding the engine very rough indeed. This and low cloud at 1200 feet caused me to reduce revs. & boost without delay. The vibration was very bad at all revs from 2400 & -3 to 3400 and +4. So I prepared for a quick landing, but it got no worse so I held her at 2000 and zero – the A.T.A. cruise which gave 270 m.p.h. and after ten minutes she smoothed out. However, so much oil was misting the screen, & the weather appeared to be getting worse so I landed.

At the beginning of the approach I put my fist through the stbd window & wiped the side of the screen with the back of my glove. She came in comfortably at 105 m.p.h. with slight power on & touched down easily.

The airframe could be flown comfortably at about 150 ASI. With a bit of flap; but since the engine is not happy at any power below A.T.A cruise, this is a machine to fly only in good visibility! Undoubtedly she is very fast – but the Mosquito is so much more pleasant, comfortable & sweet to fly with her two Merlins. With one great engine, I feel the Typhoon has too many eggs in one basket, - and the eggs are not perfect yet.

12 December 1942

In excellent weather today I shifted the Brewster Bermuda from Mount Farm to Heathrow. This a big American dive bomber with a 1600 h.p. Wright (which is the best part of the job). It was the first one to arrive in this country and was full of snags; at Heathrow it is to be modified. We have been warned:-

- (1) Fly with hood open owing to carbon monoxide in cockpit.
- (2) All aerobatics prohibited.
- (3) Sideslip prohibited.
- (4) Elevator & aileron loads to be kept to a minimum (apparently the controls are weak).
- (5) Brakes great when cold & don't work when hot.
- (6) Don't trust the compass.

A week ago, I taxied her back without taking-off because the port brake snatched so violently as to wrench the undercart leg, & the stbd brake just did nothing at all. They had now improved this a bit – but not much. I decide to take-off since Heathrow is soft grass, & if a wheel locked on landing it would be less serious than on concrete. I found it to be the least attractive aeroplane I've ever flown – with not one single feature to recommend it (except the reliable engine).

The take-off is long & sluggish, with a strong tendency to slide sideways to the left off the wet runway. The ailerons are heavy, rudder & elevator lack “feel” & self centring action. The machine lacked stability in pitch & in direction. She just wallows along.

At Heathrow, I had the long run of 1000 yds. & 15 m.p.h. wind, but I brought her in at not more than 100 (about 95) - which is less than the recommended speed of 105. I was thinking of these dreadful brakes – the worst I've ever touched. The landing was safe enough but the touch down was heavy. 105 would have helped the touch down. The soft wet grass stopped her in about $\frac{2}{3}$ of the run. Unfortunately I forgot to unlock the tail wheel after landing.

What a pleasure it was to fly home in a dear old Albacore. Just a giant Moth – with 1000 h.p. & a marvellous view. What a difference in the workmanship of every single part!

I had quite a variety of aircraft & knobs & taps to remember today. I went to get the Bermuda in a Fairchild, returned in the Albacore, then did a little taxi job in a Puss Moth, after demonstrating to a visitor starting & run up on Wellington & Hudson.

13 Dec 42

Very high wind & 1000 ft ceiling today. But there was a new type of Wellington (Mk X1 with Hercules 17) to go from Brooklands to Boscombe Down. The wind kept the balloons down so we flew in to Brooklands in an Oxford. It being Sunday, I reflected how I used to drive in of a Sunday afternoon in the old green Riley & pay for 10 mins in a Moth! Now I came to collect a 3500 h.p. Wimpey with less excitement. In spite of the high wind, I managed a neat take-off (wind straight up the runway) & a decent landing at Boscombe. 95 m.p.h. & 40° flap. Full flap at the touch down. In the rough air we found the A.T.A. cruise of 1800 & -1 gave 130 A.S.I. & some “kicking” on the elevator. But she was quiet at that.

However a front was coming in, so I put her up to 2400 & +2 which gave us 200 m.p.h. & improved the feel of the elevator. In the humps the wing tips were waving up & down quite a foot!

I made two mistakes though (in cockpit drill) at Brooklands, while watching & thinking of a nasty dense rainstorm that had just arrived. I started the port engine with the main mags off, and I did not close the gills for take-off.

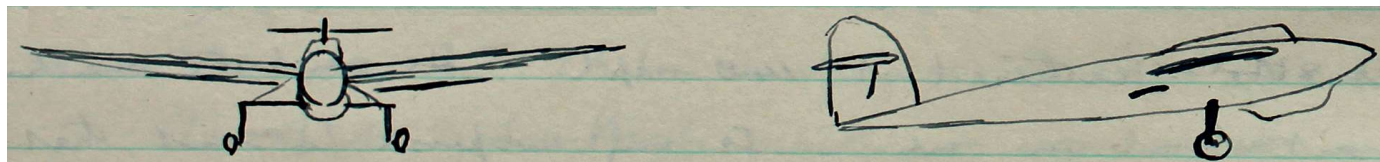
15 Dec 42

Vickers test pilot M Luck, delivering the first Warwick today, picked me up at White Waltham on his way to Lyneham. It is like an enlarged Wellington. He flew it level on one motor (at max climb power) with the stbd feathered at 140 m.p.h. he said the machine won't climb on one. To my surprise he said that he had never done a mislanding with it, & the safety speed is not known. He practised a mislanding at altitude, lifting the undercart first. I suggested he tried lifting flaps to 30° before raising the wheels. He found this better & appeared impressed with the idea – which is merely what our School teaches on the Wimpey.

At Lyneham I had a quick look in a Liberator cockpit; it was quite neat but I think our British 4 engine cockpits are more practical. This is proved by the fact that in emergency a Lancaster or Halifax could be flown solo without any flight engineer.

I flew my first Barracuda today – testing the hydraulics. There had been difficulty in getting the green lights. I found everything O.K.

This Fairey job is a strange looking thing with a queer undercart to retract & to allow the high wing to fold. Her performance is not great which makes me think she was designed for a bigger engine than the Merlin.



The tail plane is set high to clear the wash from the flap-divebrake mounted under the wing.

She flies very pleasantly and very like the old Battle. The angle & rate of climb are low & she needs 2200 & +2 to cruise at 130 knots (150 m.p.h.). It is the first pilot's cockpit I've ever seen with only a distant reading compass – and no magnetic compass to fall back on. So I managed for our Class II pilots to be instructed in the use of the D.R. compass.

It would be very easy to undershoot on the approach. The most unusual feature of this machine is the amount of power needed to make a steep approach at 85 knots – zero boost & 3000 is not too much! Very like the Halifax – the drag of that undercarriage is enormous. If the engine failed, one would have to dive to maintain 85 knots!

Sunday 20.12.42

After a week of heavy rain & warm south westerly winds, it cleared today & we did a lot of flying. I tested a Hurricane & a Blenheim, then went to Brooklands (through the balloons) to collect the first WARWICK. This is a giant Wellington (wing span over 100 feet - I think) Weight at ferrying load 34200 lb. But she is so well proportioned that you are not conscious of her size until you see a wellington beside her. She has two double Wasp of 1850 h.p. each and a central engine control bank. The test pilots seemed unenthusiastic about her.

I think this is because the prototype killed her crew when the wing fabric came off in a very fast dive. They said she'd hold height but not climb on one motor, the safety speed was not known, and a mislanding had never been done. So that gave me plenty to investigate and I made a written plan of trials before taking off.

The petrol system is very simple for a really big twin – two engine cocks, one balance cock, & 5 immersed electric pumps.

The take-off was simple & used only half the run. But I found my right hand on the port mixture lever which is next to the undercart lever. So I will issue a warning against going into idle cut-off when you wish to raise the wheels! Cruising speeds were then noted from 1600 & -1 to 2100 & -1. The best for our job is 1900 & -1 = 180 A.S.I.

We then feathered each engine in turn & found that she would keep height at 140 A.S.I. (2400 & +4 ie. climbing power) and climb 200 f.p.m. at 120 A.S.I. I was very with this performance. Then at full power, we cut one back & held it without trimmers or going into coarse pitch at 130 – which is what I shall give as safety speed.

Up to this point she'd behaved quite as nicely as a Wellington. But on lowering flaps & wheels, I found she needed more strength to hold the considerable changes of trim which there were in transit. The most curious thing developed on practising mislanding; as the flaps came up, the port wing went down in spite of full

opposite aileron. This was checked power on & power off, wheels up & wheels down. Moreover, the flaps are positively coupled so that they must come up together.

We made a landing & a circuit on the 2000 yd runway at Lyneham 30° out of wind 25-30 m.p.h. It was easy enough (using half the runway), but a smoother touch down would have resulted from less flap and a speed higher than 80.

Home in an Oxford - instructing a pupil.

Christmas

Three quiet days at home at Penn. Non-flying weather – thick mist. Good turkey. Wrote many letters & did our accounts for the year.

29 Dec 42

My first Beaufighter was a Mk VI with Hercules VI 1600 h.p. each. Visibility was quite good, when I left Shawbury under $\frac{8}{10}$ cloud at 2000 feet. Very cold stormy wind from the north. The runway was only a trifle out of wind & the take-off was quite straight & smooth. At 2400 r.p.m. and +6 (max cruise rich) she was doing 300 m.p.h. in the first circuit. At 1900 & -1 in weak (A.T.A. cruise) we headed south at a steady 225 m.p.h. Ailerons were light & powerful, elevator & rudder heavy causing one to use the elevator trimmer for any pronounced manoeuvre.

I throttled down the stbd motor to see how she handled, but quickly opened up again as the temperature dropped so rapidly. She opened up O.K. but 5 minutes later, I found she was swinging right & required rudder trim. Then I noticed stbd rev counter down to 1000 r.p.m. Engine failure!

I had about 1500 feet so kept this, while the speed dropped to 180. I changed the stbd tanks, went into rich & checked all instruments specially petrol pressure. No improvement. Increased r.p.m. to 2400 on Port & turned back towards Shawbury. (I was near Kidderminster, & had to turn right away from the balloons with the good engine on the top of the turn).

I applied full carburettor heat, & after about 10 minutes on one engine, the stbd came back to life. This made me think that the trouble was carburettor ice. So I turned South again, & delivered it to Aston Down, (since Kemble's only runway was at 90° to wind & the U.S. sign out.

I found the undercart gave a lot of drag when down. The touchdown was O.K. if a trifle wheeley (using about $\frac{2}{3}$ flap in the strong wind)

There was a brief snow shower while I waited for my taxi.

The engine failure was interesting because:-

- (3) Normally, carburettor icing with an oil heated British carburettor is not expected in clear air – even at 0°C which prevailed at 1,500 ft. One expects to use the Hot Air intake in precipitation between +20 & -10. I think the carb. oil flow was coagulated when I first throttled down.

This being my first engine failure on my first solo in a high performance type, I was interested to find my brain & hands taking the necessary decisions quite coolly, one after the other – including working out the reciprocal course! For others I have to thank:-

- (a) My technical instructor Capt. Gribble
- (b) My instructing experience on the Oxford.
- (c) The excellent Beaufighter performance on one engine.

(d) The knowledge I've picked up in the Technical Department.

15 Jan 1943

FOUR HUNDRED M.P.H.

In beautiful weather today I delivered a Spitfire XI to Benson. This is a Photo-Reconnaissance machine with all guns etc. removed. She relies on her speed – and what speed.

The climb was over 3000 feet per minute at normal power. She was up to 7000 feet without any delay. I made a shallow dive to 360 m.p.h. and then climbed away at 5000 f.p.m. with the indicator hard on the stop.

She was so sweet & steady that I dived again & exceeded 400 m.p.h. without using full power. Then as a contrast, flew along a railway at 120 m.p.h. with flaps down. At all speeds she was as sweet and charming as she looked in her pale blue finish. In fact, she tempted me to make a couple of slow rolls. The wind was about 20 m.p.h. at 45° to the runway at Benson, so there was some doubt whether I should land there. On the approach, the drift angle seemed reasonable, so I put her down & no difficulty resulted.

17 Jan 43

By contrast, I flew across the aerodrome today quite steadily at 27 m.p.h. This was two up in the Auster III - a Taylorcraft with Gypsy Major. She was quite stable power on, flap $\frac{3}{4}$ down – she stalls at 25 m.p.h. power off flaps down & 36 m.p.h. flaps up.

The Cirrus Minor of 70 h.p. is quite big enough though. The extra horsepower is wasted in that airframe cruising 100 m.p.h. at 2000 r.p.m. I was amazed to fly a complete circuit inside the small field at Bray!

The only advantage of flap for take-off is to unstick in 50 yds; she climbs better without it at 55 m.p.h. approach flaps down 40 m.p.h. flaps up 45 or 50 power off.

26 Jan 43

Getting a pure white Halifax out of Eastleigh was interesting today. The wind was S.W. about 15 m.p.h.; the take-off run of about 1000 yds was south, but the lane out between the balloons was South east turning to East.

This made necessary a climbing turn down wind immediately after crossing the hedge. She made it beautifully. It was my first 4 engine take-off between balloons. We flew to L. Rissington under $\frac{10}{10}$ at 1500 feet in fairly good visibility.

Oxfords on the school there forced me to go round again 3 times. So I cut the last circuit more close in to avoid getting blocked again. As a result, I surprised myself by momentarily getting into an overshooting position (at about 1000ft) – which is very unusual on the Halifax. And this led to entering the aerodrome trimmed neutral instead of tail heavy. So the touch down was a bit wheely.

No front turret on this one, she cruised at 180 at 2200 & +2.


My first LANCASTER

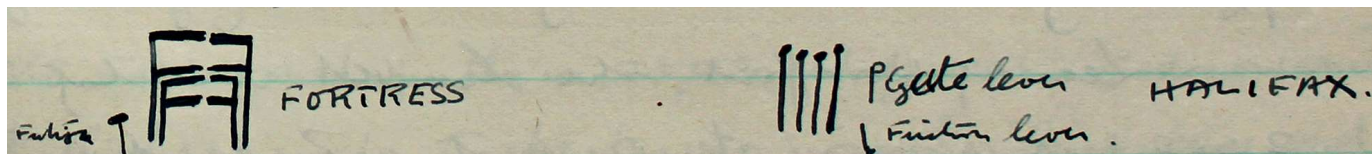
29 Jan 43

We left W. Waltham at 11am. in the dual Fairchild in a fresh wind & arrived at Manchester at 12.30, having passed between dense rainstorms & some haze near Litchfield & Burton on Trent.

This route just West of Rugby & East of Coventry is the most direct – about 130 miles – but passes high ground South of Macclesfield.

We picknicked on spam & thermos tea in the Fairchild then examined the MK. III Lancaster. It has Packard built Merlins with injection carburettors – the first I've seen or handled.

I found the cockpit layout very convenient & practical – except the throttles  and their friction. The linkage worked nicely but the Halifax & the Fortress levers & lever friction is preferable.



The only real snag on the Halifax is that the linkage is rather heavy to open. The gate is good

The Lancaster engineers panel instruments cannot be read so well by the pilot as on the Halifax, & the interior of the fuselage is more obstructed. The engines (especially the outers) warm up rapidly & soon reach 115°C taxiing. The throttle arrangement makes it inconvenient to taxi on the inners with outers throttled down. One can stop outers & leave throttles wide.

But what a delightful machine to fly! She seemed to have no vices on take-off, in flight or on landing. It's almost time to say she is as simple & safe as the Anson! No higher praise is possible. And distinctly faster than the Halifax.

The biggest difference from the Halifax is the lightness of the elevator, (fully static balanced) which on landing makes it possible to hold off while the right hand closes the throttles. And she is distinctly more buoyant during the hold off. I came in finally at 100 -110 against a fresh wind about 15° off the runway & used only about 600 yards of it.

Leaving Woodford, she climbed readily to 2500 feet crossing the Derbyshire Peak district over Buxton & in 20 minutes we arrived east of Nottingham (62 miles).

On the descent she was doing 220 m.p.h. (a little unstable in pitch). Her cruise was about 190 m.p.h. at 2200 & +2. We then flew slowly up the railway line at 140 flaps up & 120 – 125 flaps 30° down.

At 2000 feet, we feathered the stbd outer, & throttled the inner right back on the same side. She was easily controlled by the trimmers with the port engines at 2000 & about +2 boost, at around 150 m.p.h. Lack of time prevented us continuing long enough to take exact figures.

Home by Fairchild at 5.40 – 10 minutes after landing time - 115 miles from Nottingham in about 1 1/3 hours against the wind, passing east of Leicester & over Sywell in warm sunshine – rainstorms clearing the air.

21 Feb 1943

My First Glider

Low cloud & thick mist stopped flying today. But vis. Went up to 2000 yds after lunch, so I popped over to Bray in a Fairchild to see the A.T.C. cadets gliding. A V8 Ford winch pulls in 2000 feet of wire, in accordance with light signals to the driver from the launching end. I saw a “ground slide” on an elementary type, then a “low hop”. This was straight, about 100 feet high without casting off the cable.

I was offered a trip in an intermediate type. Acceleration from rest to 55 m.p.h. was even better than I expected. No windscreen – I wished for goggles. On the climb, bringing the stick back increases the airspeed; but if carried too far, produces pitching. I dropped the cable when almost over the winch at perhaps

300 feet. Then made a circuit at 35 m.p.h. keeping over the hedge. In turns, one needs to hold off bank, & use little rudder. The final turn at about 20 feet seemed to be skidding outwards but this was an optical effect.

I had been warned to make a landing in level attitude (not tail down). As a result, the stall occurred quite suddenly & with very little hold off (through keeping tail up) I dropped the machine about a foot but everyone seemed pleased with the performance. Next time I'll take advantage of the fact there is no undercart & hold off really low. I'd not landed on the belly before, nor without an engine of any kind.

In flight, there was more impression of speed than I'd expected, & although no engine noise, there was considerable wind whistling.

A novel & exhilarating experience !

10 March 1943

Mosquito MK VIII

This P.R.U. job has extra tanks & no guns. For the run from Hatfield to Benson, they'd given me 720 gallons! Checking this it turned out to be 660. So I chatted with test pilot Tucker about getting off & landing with such a load in a light wind.

After consulting the slide rule kings he agreed it would be alright. Nevertheless, my thoughts were on this load & as a result I made two mistakes:-

(a) Before letting the brakes off, I had 25° flap & 2000 r.p.m. on each. I ought then to have opened up normally after she got rolling. But in fact I powered on the coal over quickly & swung about 15° left.

(b) The machine was slow in flight. Everything looked o.k. so I attributed this to the load. Actually I was foxed by having seen red lights on the u/c for so many years. This machine has the new signals red - in transit, & more when wheels are up. The lever had kicked out before they were locked up. The approach at 130 – 135 was too fast for the load – it gave a longish hold off. 125 would have been ample in the wind of 10 – 15 m.p.h.

300 m.p.h. cruising!

12 March 43

A lovely spring day, with a very light east wind bringing the London haze to Slough – under a clear blue sky. Balloons very high at Langley & it was tricky flying in through the haze. I went in low & slow on the Fairchild.

Napier's man started my typhoon on 3 cartridges & ran her up. The engine was stopped while I got in. She went off on my second cartridge.

Take-off on the smooth grass was steady enough – making no attempt to hasten the tail up. But at climb power, she was very rough & I was glad to shut down to zero boost & found the smoothest revs was 2900.

This gave just under 300 m.p.h. – in weak mixture! At + 4½ & 3150 (max cruise in Rich) she soared along at 330 m.p.h. at 4000 feet.

In 12 minutes I sighted Kemble (68 miles) & brought the throttle well back. She took well over 5 miles to slow up to 200. Although the radiator flap was closed, engine temperature rapidly dropped from 80° to 60°.

This Sabre threw no oil on the windscreen. At 150 m.p.h. I gave her 25° flap & practised slow flying along the railway. Quite satisfactory with the revs in the least rough position – 2900.

There were several machines to be watched on the circuit, so I landed on the runway, just after a Blenheim got off & with a Lancaster behind me. Undercart went down easily, pitch to fully fine, but watching the traffic, I forgot to give full flap so the nose was a bit high on the approach at 120 m.p.h. (25° flap on). To avoid overshooting I closed the throttle on entering the aerodrome at 100 m.p.h. then touched down nicely & her excellent brakes stopped me smoothly in about $\frac{2}{3}$ of the run. The wind was so light that it gave very little help in slowing up. After touching down one could see nothing ahead – only the edges of the runway at the side, but the brakes gave such excellent control that it was easy enough to keep straight.

Very pleasant flugsport but the roughness would be tiring on a long run. A Mosquito is more comfortable at 300 per.

Stratosphere Wellington

16.3.43

I'd not flown a pressure cabin job, nor exhaust turbo-Superchargers before. This was the only Mark V – the Hercules XI, and it was going to Brooklands.

So I had a look at the balloons in an Oxford on test this morning, & the London smoke haze was too thick. This afternoon it cleared into a perfect spring day. By phone I was told to land South to North.

It was stiflingly hot in the Perspex double dome. But I checked everything OK except that I failed to note the feathering switches among the mass of gadgets on the starboard side. (Electric Props).

The take-off was very good, leading considerably with starboard throttle. On arrival at Brooklands, I made the awkward decision to land North to South, contrary to what I had been told, since the wind had got up from the South. I kept a sharp lookout for other aircraft taking off; I found on the approach that her big 4 blade props caused immense drag when throttled down, so had to use rather more throttle than normal. I approached at 90 m.p.h. against the light wind in order to keep the nose down & improve the view. A higher speed could have been used in a stronger wind, or a lower speed (& more power) if the run had been very short. 90 turned out to be about right under the conditions prevailing. The touch down was just a trifle tail first.

There was a MkI to take back to W. Waltham. They doped the port motor several minutes before I was ready to start. As a result, the fuel condensed & drained down into the intake, producing a small fire at the first attempt to start. But the Pyrene soon put it out. The take-off was good & the touchdown satisfactory, a trifle tail first.

Mosquito into Cambridge

18.3.43

A light wind 30° on left of the 900 yd runway at Leavesden. Nice straight take-off, & quarter of an hour cruising at 230 took us down sun through a mist (4 miles vis) to Cambridge. Made a short descent at 340 m.p.h. – very smooth.

Landing with less than 100 galls aboard, I was warned to guard against float & overshooting. So I entered the aerodrome very low with some power on at 115-120, touching down very short on what turned out to be a rough part of the aerodrome. We used only half the run & very little brake. But the touch down would have been sweeter with a perfectly normal approach – disregarding the light load, & using the usual 120 125 with less power.

Before this trip, I tested a Rapide with 4 passengers. A very attractive D.H. product as thoroughbred as the Mosquito.

I trimmed the Rapide to hold height at 90 m.p.h. with stbd engine throttled right back – hands & feet off! Her normal cruise of 2000 r.p.m. gave 125-130 m.p.h. very smoothly & sweetly. The hand brake must be used carefully; it is car type – keep knob pressed to unlock, which is opposite to the Maggi & Proctor which only locks when knob is pressed.

Sea Otter

Sun 21 March 43

The pool had washed out owing to widespread mist & patches of fog. But at 2 o'clock, Supermarine phoned to say the Sea Otter was at last available, so we popped down to Worthy Down in 20 mins by Fairchild.

Generally similar to the Walrus, the Otter had more power, more weight, and has a c.s. tractor instead of a pusher. Mr Robertson, the test pilot, flew me over to Chattis Hill, then bravely stayed aboard while I made my first circuit.

This disclosed (a) our drill does not remind the pilot to use the boost override, required on the Otter for take-off, (b) Her flaps are not necessary 9except perhaps for a deck landing). I forgot to use them on the approach which was very steep anyway, power on at 75 knots.

The take-off is less difficult than the Walrus. The rudder is not so sensitive. My flap-less first landing was the best I made. To get the tail down one has to heave the elevator up at the last moment against its own weight. With flap down the moment to do this is more critical.

But the most amazing thing was its behaviour on three practise force landings. The descent was so steep & the nose so far down – I've never seen anything like it. With wheels down, flaps down, & prop in the fine pitch stops, it's a sort of spiral dive into whatever is vertically beneath. Under these conditions, not even the test pilot claims that he could level out at the bottom.

So I must emphasize in our notes, that engine failure demands flaps up, wheels up, prop in coarse (she then windmills at about 600 instead of 1200) and an overshooting approach at about 85 knots.

Cruising is 97 knots at + ½ weak mixture & 2200.

STIRLING

26.27 March 43

It is proposed in future that Class V pilots, instead of having a separate course on each machine, will take the basic 4 engine course on Halifax. Then later, two trips as second pilot before flying as Capt. on the other 4 engine types.

Accordingly, I went as second to Doc Whitehurst from Swindon to St. Athan. He had difficulty on take-off & landing due to a crosswind (about 40° 20 m.p.h.) on the starboard (the worst side).

The enormous keel area which helps her head to wind, to run straight down the runway, is a disadvantage in crosswinds. I flew it for 40 mins & was much impressed by the lightness & effectiveness of the controls & trimmers. She feels right & is most restful to fly.

Next day I did the take-off & landing from the right hand seat & was lucky enough to do it well (head to wind). The following points were noted:-

Taxying Watch brake pressure – it builds up only slowly in flight. The brake lever is awkward (same hand as throttle) & the response is not immediate. More difficult to taxi than Halifax.

Take-off 1/3 flap out. Trim 4 nose down rudder neutral. Clear to zero & set 2000. All clear aft? Throttle levers are light but have over long travel. Brake so awkward as to be useless at start of run.

Climb: 140 – 150 m.p.h. Reduce power. Flaps up after u/c is up.

-

Landing circuit M = Rich

P = 2400 Prime exactor throttles

150 A.S.I. F = Flap $\frac{1}{3}$ out.

140 A.S.I. U = u/c down. Maintain 140 m.p.h. about 2400 & +2.

She flies well with wheels down & $\frac{1}{3}$ flap.

Approach Turn in at 140 m.p.h.

Full Flap 120 m.p.h. Trim tail heavy

Landing Maintain 120 & check gently a trifle higher than Halifax. The

throttles are so light they may be used with one hand.

Hold off normally, stick back, close throttles only when all descent has ceased. Stick right back. Watch carefully for swing owing to awkward brake.

One hour with one engine out

3.4.43

My first solo Stirling proved rather exciting. Took off from Rochester in a flat calm, with seven air cadets aboard at 4.50. South of London smoke reduced visibility to about 3 miles but we cleared it at Guildford & had 12 miles under $\frac{5}{10}$ at 3000 ft.

Passing Farnborough, about 15 mins. after take-off, I noticed the port inner engine was throwing out a lot of oil. I consulted with my Flight Engineer who thought it might run alright. But it seemed to me the leak was getting worse & we should soon have no oil left & wreck the engine. So I feathered it, & put the port outer up to 2200 & +2, leaving the starboard engines at 2000 & zero. This gave an airspeed about 150, & we had not much time to reach St. Athan. I considered landing at Farnboro, & would have done, except that the job was priority P1.

So we opened up all three to 2200 & +2 & gained height to 2500 feet & continued our journey. Levelling out she trimmed level feet off at 170 A.S.I.

Over the Bristol Channel, I decided to restart the dead engine & use it for landing since enough oil was remaining in it, & it was wiser than risking a 3 engined approach with no chance of mislanding, with wheels & flaps down.

So we warmed it up carefully: in full coarse she windmilled at 1800. I was glad we did for when we lowered the undercarriage, the port leg failed to come down. So I held height and did a couple of circuits at 2,500 feet & 140 A.S.I. while the F/E did his stuff. He finally got it down, without hand winding, by selecting up then hard down with all his weight on the lever.

Being worried by the possibility of the engine packing up with the wheels down, I turned in rather close for so light a wind, & made a straight approach at 120 rather overshooting. This caused me to close the throttles more than I intended to do before I flattened out. As a result, she sank on to main wheels & bounced once.

Moral: reduce power in stages, watching boost & revs, & keep sufficient power on until all descent has

ceased. (Throttles sensitive at low power but not at high) We came to rest quite straight & easily with only a touch of brake.

Stopped the inners, dispersed the aircraft, made out the snag sheet & signed the flight log, & got out to look at the engine. It was covered in oil & so was the complete undercarriage on that side. They quickly covered the tyre to keep the dripping oil off it. A fitter who saw me on the circuit, said he thought the engine was on fire. I told him I'd had my finger on the fire extinguisher button, & opened its cover, just in case.

Well at least we saved the engine, got the undercart down, & delivered the aeroplane "priority P1"

Home in 50 mins from Llandau (13 in the Anson) landing 10 mins after landing time.

STIRLING

Practise with both Stbd Engines Feathered

8 April 43

At St. Athan today I enquired about the engine trouble just described. The Sergt. Fitter told me that there was only 2 galls oil left out of the twenty galls. So I stopped it just in time. And they found a lump of piston in the oil filter, so the engine must be changed. Evidently piston failure was the cause of the trouble.

A.I.D. at Rochester said they had a piston go recently & are satisfied that the engine made two or three more flights thereafter – 4 or 5 hours in all. At St. Athan the Sergt Fitter remarked that sleeve valve motors will continue to run after considerable internal damage.

Our Stirling today was not quite ready, & on run up we found a defective oil gauge. Take-off at 2.30 in good vis. $\frac{10}{10}$ at 3000 ft, light wind from N.W. Mr Campbell made a special record of head temps. during taxiing take-off & climb. The inners went out of limits with gills closed: will experiment with inner engine gills $\frac{1}{3}$ open.

At Alton cloud lifted to 5000 feet $\frac{5}{10}$, so we climbed up to that level, & checked the performance with stbd outer feathered, then stbd inner as well.

It was my first experience with two engines stopped on the same side. She needed about 2200 & +2 at 150 A.S.I. The rudder trimmer was excellent – fully adequate. No aileron trimmer is fitted; I had the wheel over about 70° to port. The total travel is 180° each way.

We unfeathered near Salisbury & warmed up carefully before bringing them up to speed.

At Weston Zealand we went through a mislanding practice to check trim changes of flap, u/c, power. She was quite easy to hold.

Thereafter, I found the elevator trimmer would trim forward but not back from neutral. F/Eng Gardner went aft & cleared the jam (which was noted on the snag sheet)

Weather at St. Athan was excellent with 15 – 20 m.p.h. wind straight down the runway. I did my circuit at 2000 feet +/- 100. After priming exactors, I shut down to - 4, put revs up to 2400, to reduce speed to 150 $\frac{1}{2}$ flap. Then u/c down, entering the downwind leg. Zero boost at 140 A.S.I. I allowed about 2 miles straight approach (which was not too much) turning in at 140, & then giving full flap which takes about a mile to come down at 120.

I called out - 2 just before giving full flap, then - 4. I noted that revs began to drop about - 5, so set 2200 by throttles, then immediately 1,500 since we were in an overshooting position at about 800 – 500 feet. Throttles were now almost closed & the attitude of descent very steep, trimmed tail heavy (trimmer well

forward!) The check was immediately followed by the hold off, as I was bringing throttles back the last bit gently, she touched smoothly down on the main wheels and it was a perfect wheeler. I shouted "Close" as the tail came quickly down & she slowed up quickly & straight almost stopping in 900 yds without break.

This pleased me so I decided that 1,500 is the minimum sensible revs entering the aerodrome. Probably – 4 (giving 2400) is more desirable. This would give a less steep attitude, & I guess this produces a very slight trust (as distinct from a drag) from the propellers. Static run up needs about zero boost to give about 2400.

Home in 1 hour (wind behind) by Fairchild – to test Barracuda.

My only mistake this trip was exceeding 100 on the climb with flap $\frac{1}{3}$ out.

HALIFAX

Practice with Two Engines Feathered

13 April 43

Morning mist in the valleys cleared by 11 o'clock & the weather was brilliant – first day of summer, sunshine all day, with clear sky & light S.W. wind.

As I write this, an hour after sunset, an enormous force of 4 engine jobs have been droning past for half an hour. I saw about fifty & then stopped counting. Don counted 197. Let's hope their losses are light.

My Halifax this morning was from W.Waltham; we took off at 12.30, quite well despite very stiff throttles. We climbed steadily to 7000 feet just West of Oxford, for our tests.

At cruising speed & power, we turned off the ignition to one motor; as expected, no drop in boost or revs was indicated. But I was surprised, in going into fine pitch to see both the good & the dead engine run up to take-off revs, boost +2 on the good & zero on the dead. So that did not disclose which engine was out, as I had hoped.

The quickest way is to pull back each throttle in the turn on the side towards which she is swinging. When the good throttle comes back, the swing is unmistakable. The dead throttle does not affect it. Opening the throttles does not give such a pronounced effect.

We then feathered the two starboard & held her comfortably straight & level at 2600 & +9. Altitude 5,500 ft. Full rudder trim made it nearly peel off at 125 m.p.h., full aileron trim was not used.

On a dummy approach (4 engines) at 115 m.p.h. we noted that boost had to come down to -7 before revs dropped from 2600. Throttle closed gave 2000 r.p.m.

At static run up - 4 = 2000, zero = 2500 +3 = 2600. Conclusion from this is that - 4 is a pleasant power on the approach.

My landing at Radlett was on a runway not over 1000 yds, wind 30° on the right. It was satisfactory but not good; I held off a trifle high, got the stick back, & cut the power being satisfied descent had ceased. She then sank about 4 feet quite suddenly. Had I not been worried by the length of run available, it would have been better to make sure the nose was well up & let her sink on to the ground before cutting power. This might lead to touching tail first, but is not likely (I've only once touched tail first on Halifax) It would certainly use a bit longer run, but not much.

Note 14 (21 July 42) shows I had this idea then; but Dlug did not like it; was too much space. I think the question of loading has a lot to do with it.

A lovely clear morning and the Met. Said fine all day but they were optimistic. The first Mk III Stirling was ready at Rochester to go to Oakington near Cambridge. The C.T.O., Campbell & F/E Cooke came with me in an Anson for test. Near Gravesend the port motor started misfiring & was no better in Rich or after changing tanks. But it kept going. At Rochester at noon but found them just starting the daily inspection. So we had lunch after Mr Campbell had made his notes & took off at 2.45. There was a light wind from the North & $10/10$ at 3000. The Mk III has cable operated throttles etc. instead of exactors & $+8\frac{1}{4}$ boost instead of $+5\frac{3}{4}$.

We recorded certain figures on run-up (revs against boost in steps of 2 lbs) All heads after run-up were between 150° - 200° C. After taxiing gently out they were 150° C, which was nicely cool.

The take-off was much more pleasant than the MkI but it is necessary for the F/E to hold the throttles open like a Halifax, since the ratchets have been deleted. The [break neck?](#) ratchet was good on take-off but not so good throttling down for landing.

As soon as the wheels were up, we note that all heads were 250° -- comfortably under the max of 270° .

We crossed the river at Gravesend – Tilbury & soon passed Burtonwood at 190 – 200 m.p.h. cruising at zero, 2200 in weak.

At Bishops Stortford the ceiling came down & we flew at 1000 feet in rain which steadily increased. The windscreen was badly obscured & the only view was sideways. Passing Cambridge, I decided to fly up the railway beyond Oakington to see whether the rain was local. But at St. Ives I could see no break & it seemed likely to get worse rather than better. Therefore I decided to try a landing & turned back to Oakington & flew slowly (140 m.p.h.) with $1/3$ flap at 220 & -3.

Having seen the North wind was straight down the runway I increased to 2400 & +4 and went up to 1,500 feet, & lowered the wheels. Then we had difficulty opening my direct vision panel. F/E reported Port outer gill motor failed.

Approaching at 120, I found the Mk III throttles a great improvement, especially throttling back during the hold off. Owing to the rain, I did not attempt a complete three pointer but made a satisfactory wheeler & stopped easily with a little brake at the last. Since we could not open the gills on No.1, we stopped before taxiing to dispersal.

Coming back in the Anson, we gave a lift to Capt. Dlugaszewski & his crew. At Letchworth the port motor started missing again, but it kept going so I continued, throttling it back on sighting Maidenhead & landed using the starboard only.

Mosquito

7 May 43

The take-off between the balloons at Brooklands was O.K. but 1 red light stayed on. So I lowered the u/c & tried again. The wheels came up but during flight the red lights flickered on. So I decided it was faulty setting of the microswitches. The visibility over the hills from Marlow to Berkhamstead was very poor – 2 miles at most with $10/10$ at 1200 ft. but I carried on at 230 m.p.h. (2300 & zero) knowing that the weather was better to the N.E. We hit the L.N.E.R. main line at Harlowe & ran up it to Wyton (25 mins. from Brooklands)

The wind about 20 m.p.h. 30° to left of runway; in rain, it was not very easy to make a good straight approach cross wind. The landing was a bit wheely. So I taxied back to do another circuit (& to check the undercart).

On this take-off (slightly out of wind) I made the same mistake as on 10th March. I opened up too fast & she weathercocked to the left. So I had to throttle back & was very busy with rudder & brake to stay on the runway as she snaked left & right. I got her lined up less than halfway down so continued the take-off.

The landing was as before; I attribute this partly to the wheel control of the Mk II. One's elbows get in the way of bringing it right back with arm rest folded up – better down. The fighter version with the stick is more convenient for landing.

Bob Morgan flew me back in rain & low cloud with his Fairchild engine very rough & running irregularly.

Stirling III on wet grass

11 May 43

En route to Rochester, I noticed the Anson A.S.I. flick up from 140 to 160 knots & the rate of climb showed a momentary drop of 2000 r.p.m. This made me suspicious since we were cruising level. Therefore I disregarded the A.S.I. on the approach (which showed 110 knots when we were doing 60 or so). It stayed at 80 knots when we came to rest. Water in the lines.

We had to wait for the Stirling to have a new hinge on the pilot's hatch, which had been unlocked & blew open when they were running it up before our arrival. This delayed us 1½ hrs until 13.30 which was annoying because the Met said a warm front would arrive at St Athan at 1400. It was a brilliant morning but became ¹⁰/₁₀ at 2000 as we took off in excellent visibility.

I very nearly made a stupid mistake. Foolishly I did my drill somewhat too quickly while watching another Stirling take off on test. I omitted "F" for flaps ¹/₃ out & turned into wind. F/E Dennet pointed this out just as I was preparing to clear the motors, shut the gills & go. The S.W. run at Rochester is none too long in a light wind. I estimate we crossed the hedge at about 110 with wheels just starting up. Safety speed of 140 took another mile (about). After a hour's normal cruise at 200 m.p.h. (2200 & zero) we arrived at St. Athan to find the wind light, light rain, & the landing tee on the runway 135° out of wind. 45° I might have considered, but down wind with a Stirling – certainly not.

So I made two runs at 45° to wind but they took no notice. So I lowered the wheels & flaps & did two mislandings (hopelessly overshot) along the runway in accordance with the tee. Still they did nothing. So I decided to land on the grass since there was no dumbbell out & I ignore the tee. This worried me since it would take me over the runway in use & someone else might land or take off on it at the critical moment: Being a /G I did not want to land it elsewhere - Henlow for example.

So I made my approach, lower than usual, having no wind against me. At 200 – 300 feet I cut both inners & entered the field as low as I dare at 120 m.p.h. This seemed very fast & the machine felt as though she would float much too far. So I cut the outers, let her down on the wheels, & hauled on the brake (which had no effect on the wet grass). In the rain, I could not see enough to judge accurately my available run or my exact height. I was afraid she was going to slide too far, but she stopped just at the runway, about 200 yds to spare!

Then they changed the Tee round.....

Flying Fortress

Thurs 13 May 43

Today the Victory in Africa was announced in the House of Commons. I tested an old Kestrel Master & found the A.S.I. reading low on take-off, port wheel difficult to retract, engine extremely rough & leaking glycol. So I landed it.

Then went by Fairchild to Hamble to fly my first Fortress to Colerne. Marvellous weather, warm & sunny with light S.W. wind, unlimited visibility & ceiling.

Found the Fortress (standing 3 days) had sunk into the grass. When they hitched on two caterpillar tractors to haul her out, all that happened was the tow rope broke! The tail wheel was at right angles, so they heaved astern again on the starboard leg, I got a few men to shove the tail sideways; that got her out.

The engines stayed very cool as we taxied out with the controls locked, tailwheel unlocked. On run up, each exhaust turbo supercharger was adjusted to give 45" of boost. Since we had 1000 gallons of fuel aboard, & the light wind almost at right angles, I used ½ flap. The available run was about 1000 – 1200 yds. With tail wheel locked, she showed no tendency to swing, so I opened all four throttles equally. As she accelerated over the boundary with the wheels coming up I had to trim her nose down. Then flaps up & climb at 150.

After opening the throttles, I did not have to touch anything except the wheel & the rudder until approaching to land. F/Engineer Bain was very busy indeed with throttles, pitch, mixture, turbos, generator & battery & instrument u/c & flap switches. In fact the machine gave me the impression that with a good F/Eng, the captain has less to do than on a Halifax, but the F/E has about 10 times as much.

She cruised nicely at 170 m.p.h. & flew steadily when she was trimmed, but the controls are heavier than the Stirling.

Sighting Colerne, we went to rich, revs 2200 dropped the wheels at 150, ½ flap at 130, turned in at 1500 feet at about 2 miles, full flap and reduced speed to 100. The attitude and the approach are very flat compared with the Halifax. More like a big Anson. I found it convenient to close the inner throttles completely, & motor in, at about 20" boost on the outers, while the F/E called out the airspeed continuously.

I entered the aerodrome a trifle lower than I intended to at 100, wishing to guard against overshooting or having to brake heavily. It was a good touch down & there was no need to use the brakes until $\frac{2}{3}$ down the run. Head to wind of 20 m.p.h. very simple under the prevailing conditions. Then tail wheel unlocked, gills open, lock controls & taxi to dispersal.

Halifax

Sat 15 May 43

Tuesday's Stirling, Wednesday's Fortress, & today's Halifax made an enjoyable week.

There was an air raid warning as I lay on the grass at Marwell, waiting while the A.I.D. checked my machine. It was a lovely summer's day, hot in the sun, with a light breeze & clear sky.

We took off at 1400 & soon noticed that the brake bottle pressure which was only 85 lbs, was not building up. I increased revs. on the inners to 3000 without effect. I decided to carry on hoping that at St. Athan there would be a fair wind to help us stop. South of Salisbury, north of Taunton, then across from Porlock to the clearly visible Welsh coast. There was no wind! I felt there was enough air for one application of the brakes, so decided to land taking care to come in low & at less than my usual 115 m.p.h. – actually about 110.

The last turn in was made at 1,500 feet with 40° flap at 2600 & -2. Then full flap immediately since I did not want to overshoot in the absence of wind. At about 800 feet I throttled both inners right back, in order to try the effect of landing on the outer throttles alone. At about 400 feet I opened the outers to +4 which produced a normal path of descent, & trimmed her tail heavy.

The hold off was nice & short as I cut the outers; the touch down a trifle wheely since I'd only my left hand to heave back with. Applying the brakes immediately, I was determined to keep them on rather release my valuable bit of air. This was more brutal than I liked, but we stopped with 200 yds left out of the 1200 yd runway.

This experiment leads me to think that the normal 4 throttle approach is better on the Halifax than outers only because:-

- (1) I think the slipstream from the inners on the elevator helps to get the tail down (always difficult on a Halifax)
- (2) One has both hands on the stick at the last, to lift the weight of the elevator.

A Quick Halifax V

Sun 16 May 43

At 5.30 this evening, a priority P1.W (wait with a/c) Halifax came through Little Rissington to Holmsley South near Whitchurch. I had an Anson for test, so off I went in typical "High" weather to collect it – very light wind, hot & sunny. 25 mins to Little Riss.

At the start of the take-off, she was directionally unstable until I gave her a bit more throttle & worked her up to 40 m.p.h. & then opened up wide.

We thundered down to the coast in half an hour, past Swindon & Salisbury to find a perfect 2000 yd runway & practically no wind. So I came in (trimmed fully back) at 115 -120 & had no need to cut the power quickly. From less than -4, I brought the throttles back a bit & did a careful hold off, before giving the order to "Close". We made a decent three pointer and she ran straight. But when down to about 40 m.p.h. there was some tail wheel shimmy. This, with the take-off, & a difficulty in taxiing straight, suggest the tail wheel damper was too loose. The throttles were very stiff. Anson awaited, so we were back at W.W. by 8.00. Without top or front turret, the Halifax did 180 at 2200 +2. Feathered port inner per instruction of F/E Markwald

Curtiss Sea Mew

18 May 43

The most underpowered crate in which I've ever clambered off the ground. The engine was interesting, an inverted O.H.C. V12 – the supercharged Ranger of about 520 hp. But she was trying to lift 5,500 lb of useless metal, with the result that max cruise weak gave 85 knots & would only just hold height at that. So I decided to make A.T.A. cruise max cruise Rich, which gives 105 knots.

It's a shoulder wing monoplane with slots & flaps, carrying an observer with his head in the tail fin! It can be fitted with floats or catapulted. With fixed undercart the track is so narrow that heavy down wind brake is required to keep straight after landing in a crosswind. Stalls at 75 all up & 45 slots & flaps out.

Stirling III in a flat calm

20 May 43

Beautiful hot but hazy day. With 600 gallons we got out of Rochester but with not too much to spare. I opened both starboard right up, leaving the two port about ½ way, then brought them up at once & held on left rudder. Passed Brentwood, Dunmow, Thaxted & Newmarket & arrived at Mildenhall in 25 mins. at 200 m.p.h. Landed comfortably on 1200 yd runway (approach 110 m.p.h. with static vent connected to A.S.I.), using outers only to avoid overshooting.

My first Albermarle

21 May 43

It was hot, hazy & calm as we left Brockworth but beautifully clear & sunny when we got to Hurn near Bournemouth.

This big tricycle, with her pair of Hercules, bears the imprint of the Whitley's designer. She is solid & comfortable but rather dull in performance. It is the easiest tricycle I've flown as regards take-off, landing & manoeuvring on the ground.

Taxying out, one can see nothing either side of the big engines; one guesses the position of the wing tips. On take-off, opening up steadily, there was no tendency to swing. One leaves the stick neutral, trimmer set to nose up, & lifts her off at 85. As the wheels come up, she accelerates to 150, then flaps up & climb at rated. (I forgot to lift the flaps until we were at 1000ft). She cruises at 180 at zero & 2000 in an attitude which appears nose up, compared with the ground attitude. As a result, the forward view is not good & the sideways view is blocked by the engines. So one can see only a section of the ground on the port bow. This would make navigation very difficult in bad weather. The landing was easy, entering the aerodrome at 105. The moment of closing the throttles is not at all critical during the hold off. (I came in at -6 boost or less, at which the revs were just dropping from 2400). One continues to bring the stick right back in the normal way, until she touches down in a tail down attitude on the rear wheels. After the nose wheel sinks, brake may be applied firmly. There was no swinging tendency. This worked out perfectly & I was very pleased with my landing which used not more than half the runway (total length about 2000 yds) with a light wind against us. Home in half an hour by Anson on test.

FIREFLY -- the new Fairey Fighter

3 June 43

A typical Fairey design, well made, easy to fly no vices. The big Griffon engine (1750 hp Rolls Royce) lifts her off in 9 seconds. But being a 2 seater she has not the same brilliant climb & speed as the same engine gives to the Spit 12. At 1900 & zero she does 175 knots (200 m.p.h.) & about 200 knots (230 m.p.h.) at max cruise rich.

No sooner had I gained 2000 feet than she tempted me to make several steepish turns which she held with noteworthy smoothness & accuracy, with no special effort on my part. A praiseworthy feature, which gives a feeling of safety, & promotes immediate confidence in the controllability of the machine. With variation of throttle, the torque load on the rudder pedals varies widely, but is easily trimmed out.

I made half a dozen landings at Heathrow – cool clear weather between dense rainstorms under a high overcast. Mr Dixon, Chief test pilot of Fairey's, seemed anxious to have my impressions of the machine. I thought of the old days when it was a big thrill for me to see such men as he, once a year at the R.Ae.Soc garden party at this aerodrome. I never thought then that I'd have the chance to handle their newest fighter.

A Pleasant week's Flying

12 June 43

Curious weather this week, not hot but warm & moist. Light fog seemed to persist in patches at 3000 ft. all day. Tuesday I tested 9 machines, mostly for acceptance – 2 Masters, 2 Oxfords, 2 Ansons, 2 Fairchild's & 1 Magister.

Wednesday p.m. a Flying Fortress from Hamble to Colerne. There was little wind for take-off, but she got off easily with 600 galls, ½ flap & turbo blowers. As we approached our destination, the brilliant weather deteriorated with thick cloud at 1500 ft. & haze below. When I made my final turn in to land, the runway was not visible but the gyro brought us in nicely & we saw the runway during the last 1500 yds. of the approach. But this made my touchdown less good than on my first Fortress; it was a trifle high & (using outers only) I cut the throttles a fraction early. Capt. Gribble was aboard & very interested. F/Engineer Bain.

Friday I had a very pleasant Stirling III out of Rochester in a very light wind. We managed an excellent landing head to wind (15m.p.h.) at Mildenhall. I was using the outers only, & had her trimmed well tail

heavy. I concentrated on getting the tail down, & did not close the throttles until she was in the 3 pt. attitude. This pleased me since my recent Stirling touch downs have been too wheely. An ideal touch down is with the tail wheels just off the ground.

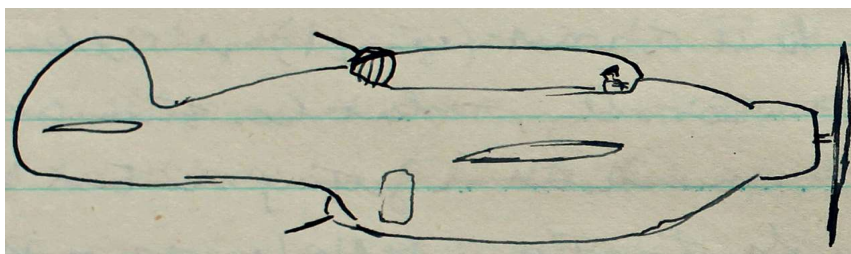
After landing, she was inclined to veer left, but this was easily checked with a touch of brake.

In a real crosswind, in addition to normal technique, I think it would be necessary to use the upwind outer throttle to keep her straight if the runway was long enough. The brakes are too slow in response & it would be tough on the down wind tyre, to make it take all the force of holding that long tail.

Grumman TARPON & HELLCAT

17 June 43

Lovely weather made 6 hours flying in the day – and two new types – an enjoyable & satisfactory day's work. We picked up Stevens at Farnboro at 9.30 & flew direct to Liverpool in 1¼ hrs by Anson with Bob at the helm while I gave him some cross country instruction. Then we examined what is claimed to be the world's best deck landing torpedo dropper – the TARPON. Later renamed AVENGER.



For so strange a shape she flew quite well, - a good take-off & easy to land, except for a desire to swing after the touchdown. But the controls were most inconvenient. Too short a stick just reached my crutch with my toes stretched to reach the rudder. And in flight the controls are so heavy as to make any violent evasive manoeuvres impossible. One has to fly it on the trimmers. Cruised at 160 knots (185 m.p.h.) at 1900 & 28".

On lowering the flaps 20° for slow flying at 100 knots, the undercarriage went down as well: that caused me to discover the curious, unusual & unnecessary interconnection between the flap & u/c levers. It can be cut out by pressing a knob on the side of the flap lever. I made a power off landing at Newbury & a mislanding at Worthy Down, then delivered it to the Navy at Lee on Solent. We then found a serious oil leak underneath the motor.

After a light lunch, we flew back again in the Anson to Liverpool & collected the HELLCAT which I also delivered to Lee at about 8 pm.

This has the world's most powerful air cooled engine – the 2000 h.p. Double Wasp. I suppose the idea was that this should cause something to happen when hung on the nose of a single seater. But the performance was most disappointing to me. At the same cruising power the indicated speed was 5 Kts slower than the Tarpon! That is just over half the cruising speed of the 2000 h.p. Typhoon! Despite 55" of boost & 2700 r.p.m. the take-off was somewhat long – about equal to a Mustang. The climb was good but not equal to a P.R.U. Spit with 1,250 h.p. There was a weird electric control of the hydraulic flaps; it did not work. At 7000 ft over Little Rissington, I stalled at flaps up & down & made intermediate landings as with the Tarpon. The only difficulty was the absence of forward view when landing. Then home at 9pm at W. Waltham by way of Farnboro.

Bob Morgan was pleased with this day's work & made a most amusing cartoon of me in the Tarpon. I was pleased that the weather allowed me to fly both types 200 miles to the South Coast with only one glance at my map. I was able to concentrate on making performance trials & notes without danger of getting lost.

Neither machine had an ordinary compass; they had the remote reading Pioneer, which swings like a magnetic compass; it is not to be compared with our D.R. compass.

The above my last job before taking my annual leave; in the two following days I wrote my handling notes & F.P.N. Card for each type.

20 June – 6 July 43

Excellent weather for my fortnight leave. Spent a night at Dulwich with Mum & Dad who came down to spend a night with us at Penn at the end of the holiday. They enjoyed a visit to the aerodrome.

I spent about seven days cleaning the car, brake drums off, & chassis oil pipes off. De-coked the Francis Barnett. Did two ½ days haymaking.

Caught by a Cold Front in a Halifax

9 July 43

I had a Halifax II from Leavesden (Watford) for Lissett near Bridlington on the Yorkshire coast. The weather was good but the Met Chart showed a cold front extending from Lands End to the Hebrides; this was moving East & they said it would reach eastern England by six P.M.

So I took off happily at 11.15 expecting little difficulty in running up to Yorkshire in about an hour. Fortunately I had prepared the route carefully, using my usual route card, since the weather deteriorated as we passed Peterborough. At Lincoln, I was down to 1000 feet under $10/10$ cloud, so reduced from 2200 & +2 = 180 m.p.h. to 2000 & zero = about 150 m.p.h. then it began to rain & visibility went down to 2000 yds with the S.W. wind bringing the industrial smoke across the Trent Valley. I began to wonder whether this was the front arriving six hours early, but thought it unlikely, & decided to carry on with 40° flap at 120 m.p.h. expecting to run out of the trouble when I turned East North of the Hull balloons. And that did in fact happen, but it was very unpleasant at Goole. I was down to 350 – 400 feet but the gyro & the watch were my guide. They got me on to the railway I wanted which went through a gap in the 450 ft hills S.W. of Drifffield.

At the coast we came into the clear & made a comfortable landing at our destination off a slightly overshoot approach, at 12.30. Twenty minutes later the bad weather got there.

At the control tower there was a message saying our Anson would try to get through later; it had landed at Brough. So I had lunch, & they told me of a Halifax which came back from Cologne this week after one of our 1000 lb bombs (dropped from above) had passed through the fuselage making a hole 4' x 5' ! Anson came in at 2.30 in rain & low cloud. The Met. Office said that this was the front & that it would be through by 5 pm. But I had other crews to collect so I decided to make for Sherburn along the railway to refuel, (forecast 600 ft & 2000yds). As we landed there, the weather improved wonderfully & so I got two messages (1) not to wait for the pilot I was to collect there (2) the other Halifax had landed for weather near Newark. So I phoned Newark & the Halifax took off for Snaith where I collected the crew & had an easy trip home in 1 hour landing at 6.30.

The moral of this story is that I'm damned glad I had prepared the route carefully, & next time the Met say a front will move in slowly, I'd better check the actuals myself. Tomorrow, I'll ask them what went wrong with their estimate of the front's movement. It reached White Waltham at noon & was through by 4pm.

Up to Brough on the Humber in 1½ hours by Fairchild in strong west wind. Pleasant lunch in the mess of the old E.Yorks Club with Chief Test Pilot Group Capt. Flood. Machine not ready until 5.30, so went round the production shops.

The Firebrand is much bigger than the Typhoon, & is designed for deck landing, catapulting, wings folding. Running up she shook the hangars giving 2,300 h.p. with her Sabre 24 cylinder doing 4000 revs at +9 boost.

I was pleasantly surprised at the small tendency to swing on take-off, flaps up or down, tail up or down. I made 4 or 5 circuits to check this & power on & off. The most delightful feature was the smoothness of the engine on its flexible mount, so different from the Typhoon rigid installation.

The worst characteristic was the tremendous nose down change of trim as flaps go down or vice versa for up. It could only be held by winding the trimmer until the stick travelled at least 6 inches.

The take-off is normally made with the Fowler flaps right down. The wheels come up smartly, & then the flaps roll in, the trimmer is wound forward six turns. Cruising at 1600 & zero she did 200 knots (230 m.p.h.) & about 10 knots more at 3000. The ailerons are good, but she is rather unstable in pitch, & must be watched on the climb. Settled at 7000 feet 93 kts clean & 73 kts dirty. Then slow flying at 130 kts with 1/3 flap.

This engine was somewhat sick at slow running, so I had a nasty moment after gliding in throttled right back; I needed a spot of power & she did not open up, so I sank onto the deck; fortunately I was not undershooting. Of course landing normally, one keeps the engine rumbling steadily.

Quite a sound job, except for the flap effect on trim, but seems a pity she is so much bigger than the Typhoon & hence not as fast. Home by 9 pm at W.W. in 1¾ hrs.

Mustang II

Sat 19 July 43

Two enormous wooden tanks under the wings prevented the flap going more than 20° down. Evidently the designer intended them to be jettisoned before landing. But what about the ferry pilot delivering the thing complete?

I was told that it stalled at 100, approached at 120 & had weak brakes. So I was glad to have lovely weather to try the first one at Mount Farm.

I found an improved tail wheel lock; no separate lever, the lock engaged whenever the stick was aft of neutral. The only snag was the necessity of putting the stick forward in making sharp turns; but she did not seem more heavy on the ground so it worked OK.

I stalled her at 4000 feet & made it 90 dirty & 95 clean. On my first approach, I was too fast - wouldn't get rid of the speed, she had so little drag with flap at 20°. So round again for a slow approach at 110 – 120. This used about 1000 yds in a fair wind, so I decided to deliver it to Hamble. Conditions were favourable there – steady S wind.

The two difficulties on the approach were (1) nose up so much to keep speed down, that there was no forward view (2) A.S.I. marks too close together at approach speeds. I tried my best to make it 105 over the hedge, sat down & stood on the brakes.

We stopped in 2/3 of the available run – with every condition favourable, dry grass etc.

So we decided this was too tricky for normal ferrying & we shall try to have the tanks sent by road – to avoid hazarding the aircraft unnecessarily.

Mosquito IX

Thurs 22 July 1943

Two of our pilots developed swing on take-off this month, & completely broke two Mosquitos. It was found that both a/c were of the types which give +12 boost at the gate instead of +9. It was considered this may have contributed to the pilots opening up too quickly.

So C.T.O. & I went to Hatfield to collect one for ourselves today. Going there I had 10 up in the Anson; landing at Leavesden the A.S.I. stayed fixed at 120 knots on the circuit so I decided it was u/s. Made a decent landing crossing hedge at 120 on ASI (actually about 70). She was still showing 80 when we came to rest. I then carried on with it to Hatfield where they fixed it (water in the static line).

A.I.D. Hatfield reminded me that I'd already flown Mk VIII with a +12 at gate (see March 10 1943). But I think the linkage on this Mk VIII gave proportional opening.

We marked off the throttle quadrant into four equal sections to the gate & took these readings on run up:-

¼ open	2600 rpm	+2 boost
½ open	2800	+5
¾ open	3000	+8
At gate	3000	+12

The total travel to the gate is about 2 inches on the quadrant – $5\frac{3}{8}$ inches on the lever knobs. The figures indicate that you get about 600 hp in the first $1\frac{3}{8}$ and the other half of the power during the next $\frac{3}{4}$ of the travel, making about 1340 hp each engine.

Subsequently, Corrie (who has taken off over sixty of them with one hand) told me that he has the friction very tight & does not exceed +2 until has covered half the aerodrome. Then +12 in the next quarter of the run. What admirable restraint! He moves the throttles only ¼ open until he has definitely established rudder control. This carries perhaps to an extreme what I advised the instructors to teach, when I was asked to talk to them last Monday about these accidents.

Today, I had the throttle friction rather loose in order to have sensitive control. This proved unwise since one crept back when I changed hands to lift the u/c.

There was a little wind on my worst side (the left). I was up to +12 at about $\frac{3}{4}$ of the run but she tried to swing left just before this so I had to throttle back a bit momentarily. From which I deduce that I opened up the first half of the travel (ie. +5 & 2800) a little too quick.

Next time I shall gather plenty of speed at +2 & 2600. It is probably easier to see the rev counters since they are above the boosts. Of course it helps a lot to have a good wind to give earlier rudder control than one gets in a light wind. It would be wise to have 2000 rpm. before releasing brakes, then go 100 yds before giving 2600.

Cruising past Oxford we noticed she was doing 230 m.p.h. with throttle ¼ open on the quadrant (one eighth of travel)! Zero boost 2300 rpm. It was very hazy with cloud at 1500 feet as we passed Moreton in Marsh, so I slowed up with 25° flap to 150 m.p.h. Droitwich to the Wrekin in the Birmingham smoke was covered at 1000 feet in vis. of 2000-4000 yds.

Landed at Shawbury, among the Oxfords. In no wind, the approach at 125 was a bit fast & called for heavy braking & subsequent directional instability. In no wind, 115 – 120 would be about right landing with 300 galls aboard. Home in 55 mins by Anson.

Flying Fortress with George Kemp

23 July 43

George was our first A.T.A. instructor; he gave me my original flight test three years ago. So it gave me great pleasure to show him the Fortress this afternoon.

I flew one circuit at Mount Farm which, fortunately, seemed to me to be perfect. Then he took off & flew us to Hayling Island. Low cloud gave us only 1200 feet crossing the South Downs, & it was hazy at the coast – visibility not more than 2 miles.

He made a decent landing, rather wheely, & seemed to me to run slightly to the right at the end of the run. No wind.


Home by school Oxford.

CORSAIR

25 July 43

No wind & thick Summer haze was slow to clear. So we did not depart for Liverpool until 1.30.

They said that this new single seat fighter cruised faster than the Thunderbolt. So I was glad that I'd prepared the route to Lee on Solent carefully. I left Speke about 5 pm in 2 miles visibility but further South it improved to 4 miles with $\frac{5}{10}$ at 3000 feet.

The Corsair is a deck landing fighter built by Vought- Sikorsky with the 2000 hp Double Wasp as in the Hellcat. Seen head on, the wing is deeply crabbed in a  shape. From the cockpit, it is like looking along the boiler from the footplate of a locomotive – with the engine at the far front.

The taxiing was the most unmanageable I've ever done; no view forward, impossible to go straight without the tail wheel locked. Impossible to turn accurately with it unlocked.

Characteristics in flight were normal, but the cruising speed was not at all remarkable; 215 knots at max cruise rich with 165 knots at 28" & 2000. I did the stalls at 700 feet over Newbury, remembering that after 1 turn of a spin, the makers state that recovering is impossible since the controls become immovable. For slow flying, she trimmed nicely at 110 knots with 20° flap. But after landing – what a vicious tendency to swing despite the tail wheel lock. One has to be very deft & lead footed on the bloody awful brakes. Home by 9pm at W.W.

Lancaster III & Stirling III

29 July 43

The hottest day of the year. After lunch, I was offered two Stirlings and a Lancaster! Arriving Swindon at 3 o'clock found neither Stirling ready; finally got away at 4.30 for the 15 minute hop to Hullavington. There we found the light wind (5 -10 m.p.h.) at 90° to the long runway. As a result my touchdown a little heavy on the wheels, due to using ailerons to lift a wing & rudder to correct a little drift. I think I got the stick well back but it was a moment late and the tail did not have time to come right down. It is over a month since I have had a Stirling (see June 12) : like the Halifax, one needs to keep in practise on the type.

The delay prohibited my chance of doing the second Stirling, so we whistled down to St. Athan for the priority Lancaster. Taxying out she was soon up to 115 - 120°C. After a decent take-off, flaps up at +9, I quickly reduced to 2600 & +6 to cool her off & climbed at a higher A.S.I. figure than usual.

We cruised across to Wyton at 180 m.p.h. at 2000 revs and +2. After half an hour F/E Gulson reported that stbd inner oil temp had gone up from 45° to 80° rather suddenly. Other readings were ok. & it went no higher so I didn't feather it.

For our landing on the long runway, there was the merest breath of wind at 90° to the runway – but it produced no notable effect. At 800 ft with full flap I had called for -6. At 500 ft, I pulled the inners almost closed & went in at 100 m.p.h. on the outers. The result was perfect; the stick came right back and a fully stalled 3 point touchdown was feather light with no yelp from the tyres.

When I reported to the Control Room, the Control Officer offered me his compliments on the landing & said they assumed I'd a 1000 hrs on the type. I replied that it was my second Lancaster – my first was 6 months ago to the day!

Actually the credit should go to the Lancaster; at low airspeeds it behaves like an aeroplane should – but so few do. Like an Anson in fact.

A Curious Halifax Landing

15.8.43

Over a month since I had a Halifax. This was a short trip to Templeford, N.E. of Bedford.

A good straight take-off at +9 in a light head wind at Leavesdon. Feathered stbd outer for practise. She stopped o.k. although the engineer left the throttle at +2. At Templeford the light wind was 30° on the left of the runway (about 1500 yds). So I made my approach with this in mind & delayed using full flap until I'd seen the amount of drift. The approach was started rather high about 2000 ft & I did not aim to overshoot as much as usual since the later Halifaxes seem to me to have less drag (no front turret etc.).

As a result, I had three adjustments to contend with below 500 ft instead of getting all set above that. First, I ordered full flap (it would have been better to leave it at 50°) Second, the F/Eng suggested full fine & I said "Yes"; 2600 would have been better left alone. Third, I had to open up the outers at about 300 ft since she was undershooting.

But I did get her trimmed tail heavy and we entered the aerodrome quite normally at 100 feet or so. As I made the first check & reduced power a trifle, a curious thing happened; the machine drifted bodily to the left. I was too low to do anything except go round again, or land. I decided to land, since the grass to the left was firm & dry. So for the first time in my experience I touched down with my port wheel off the runway. The actual touch down was good, and she ran steadily back on to the runway in about a couple of hundred yards.

I can only conclude that a sudden gust of wind came from the right of the runway since the machine appeared to drift rather than turn. So I think it unlikely that one outer engine, when throttled down, gave more drag than the other. But perhaps three props went into full fine when the F/E raised the lever and the other was changing pitch sluggishly. It is worth checking boost & revs. with a quick glance just before the first check of descent.

In perfect weather, I flew the successor to the Typhoon. This was the Hawker Tempest MkV with 2400 hp. Sabre II – the first production model. Test Pilot Capt. Broad was enthusiastic about it, and I found that he had not enlarged on its virtues.

Using no more than +4 boost she jumped forward & unstuck quickly. Wheels were up before we crossed the hedge at Langley. She climbed brilliantly at 200 m.p.h. & was quite delightful in steep turns at 300 m.p.h.

At max cruising power in WEAK mixture she shot along at 320 m.p.h. in effortless fashion. In quite a shallow dive produced the 400 mark, so I lifted her up to 10,000 feet in about 3 minutes.

Down with the nose & she accelerated like a bolt from the blue & soon passed the 500 m.p.h. mark – a speed I'd never touched before, controls were as light as at 100. I started to level out at about 4000 feet. She was soon level with no excessive "G" when there was a loud bang from underneath, the port red light came on & there was a pronounced nose down change of trim.

This gave me quite a shock, so I closed the throttle &, when the speed had dropped below 200, was relieved to find that the undercarriage went up & down normally. So I checked the brakes on the gauge & went in to land at Mount Farm near Oxford on the long runway in little or no wind. The approach is quite steep at 100 m.p.h. but the touchdown was easy with the stick right back. After running $\frac{2}{3}$ of the run I did a touch of brakes & she veered right slightly. Full left rudder checked this, but nothing happened when I gave her a touch of left brake! Approaching the end of the runway, I had no option but to apply right brake gently; she ran off on to the grass at about 40 m.p.h. then turned more sharply finally ground looping 180° at about 20 m.p.h. – fortunately without hitting anything.

Again I checked the brakes & all was ok on the gauge but there was a loud snorting air leak from the port. So I stopped the engine, climbed out & found that the port undercarriage doors had blown off severing the brake pipe.

This was disappointing since it prevented any more flying of the most delightful single engined aircraft I've ever seen or flown.

So we towed it in, & left it overnight under armed guard for the Hawker firm to collect in the morning.

The LIBERATOR

31 Aug 43

Doc Whitehurst had a Lib Mk VIII at Mount Farm for Thorney Island. Our pre-flight check of controls & trimmers was scrupulous & satisfactory. The A.S.I. would not read less than 50 m.p.h.; it had a hand for the tens & little dial inset for the hundreds.

F/E Laker used a weird but official method of starting each engine – throttle wide open. When the engine fired, he kept it running on the electric doper, then brought the throttle back as the mixture was moved to automatic. Warm up & taxiing in Auto Lean. These ideas are set forth by P & W Wasp expert at Prestwick.

Doc flew a neat circuit, then I got into the left hand seat. Taxiing was unpleasant – a lot of pitching & directional instability due to the unprogressive & powerful toe brakes (all controls locked). (Hydro boost on) Set turbo blowers to 47" then drill of vital actions, including 20° flap – gills nearly closed.

GENERATORS ON.

With 2000 revs on all four, release brakes & open wide without much delay. Over 40 m.p.h. machine runs very straight & accelerates well but needs about 1200 yds (light) to reach unsticking speed of 105. The nose wheel may be left down until the stick is brought back at about 95.

Brakes must be applied before the u/c is raised. Build up to 150 & raise the flaps, still at take-off power. Then blowers off, & reduce revs to 2400. The view on the climb is very poor – and in cruising flight is little better, due to nose up attitude.

F/Engineer runs blowers to give 1" of boost, booster pumps off hydro booster off? I was quite pleased with my take-off, but less so with my climb. Left flaps on too long & allowed speed to rise to 170 at one point.

No sooner were we at 2000ft than Doc cut the port outer; I feathered it & set idle cut off. Rudder trim held it nicely at 150.

Doc then cut the other port, so I had to put it into full coarse. Full rudder trim was not enough at 140, & I hesitated to reduce speed further & increase stbd power, so we lost height slowly. She might be ok with both feathered on one side at light load, but I doubt it with the external equipment we were carrying. $\frac{1}{8}$ flap is said to help. Our fuel load was under 800 gallons.

Cruising speed at 27" & 1900 was about 170 m.p.h. P.B.F. The landing circuit is made at 150 m.p.h. H Hydro- booster. Revs 2400. Wheels down. F/E to check must have flap up. Then 20° flap.

Final turn at 1500 – 1000 feet just about 2 miles away, at 140 not less. Full flap. The approach is quite flat like a Fortress. I called the boost down 25" - 20" - 15" & speed fell off steadily to 120 m.p.h. Just as we were entering the field, I had to open up a bit. Apart from that it was a good approach. One can cut the motors before the hold off (if desired). I saw a R.A.F. Liberator later who did not, until firmly down.

My touchdown was O.K. but a trifle wing down, the low gearing of the aileron control foxed me 180° each way; one must use about $\frac{1}{2}$ turn to pick up a wing.

One could hold the stick back somewhat after touchdown (I didn't much). When the nose wheel is down, allow speed to diminish before braking – which compresses the nose oleo still more. One needs those brakes! To save them, use all the runway to stop.

In order to avoid taxiing too fast with motors at 1000 r.p.m., must not stop inners. (Brakes from pt inner). After gills open & flaps up. Hydro booster will work brakes, instead of port inner which has main hydraulic pump.

Park it with nose wheel straight & brakes off. Just after we arrived, 51 thunderbolts came in to refuel. Very neatly & orderly.

My impression of the Lib was that it was unattractive in flight, but quite interesting for the F/Engineer. Take-off & landing seems quite straightforward provided there is enough room. 1500 yds for comfort. Rough grass would not do, at 100 m.p.h. groundspeeds.

Solo on the LIBERATOR

9 Sept 43

There was thick mist at 9 am but this lifted somewhat to form $\frac{3}{10}$ at 2000 ft. There was an Anson to go to Prestwick & passengers to collect at Hatfield for Kirkbride. We flew at 6000 ft. Looking down through the mist we could check the prominent landmarks such as Rugby & Crewe. But north of Liverpool, the east was bringing industrial haze from the Lancashire towns, so that we only vaguely discovered Southport & Blackpool.

Over the Lake District we came down to 4000 ft to get a view of the mountains, stopped at Kirkbride & reached Prestwick at 1 o'clock in 2½ flying time.

After lunch, Bob Morgan & our F/Engineer Laker settled some technical points for our new Lib book. Our Liberator was fairly light (45,000 lbs) & had over 1000 galls of fuel aboard. We used the American intercom with throat mikes & headphones which I found more convenient than the British helmet & mask.

All engines were started neatly using the normal drill common to all American engines, Taxying out, Bob stood head & shoulders through the upper hatch & was able to speak readily to me by the intercom. The take-off was satisfactory; there is no tendency to swing if the throttles are opened without undue haste. But the rate of climb was so poor that I shall specify max climb power.

Flying south the weather was a trifle better than in the morning. We flew under $\frac{3}{10}$ at 3000 ft & had hazy visibility of 2 – 4 miles. She was most tiring to fly – unstable & sluggish on the controls at 170 m.p.h. But the worst thing was the absence of forward view. Having no visible horizon, it was possible to steer a ground course only by use of the instruments. Thus no proper lookout can be kept & the chances of collision are grave. Bob Morgan flew it for a bit & found it a handful; he was disgusted with it, saying an aeroplane should (1) Want to fly (2) Permit the pilot to see where he is going. The Lib does neither. – and has no brilliant performance anyway.

For bad weather it would be positively dangerous. One could never get through the weather as on a British 4 engine job (see Halifax 9 July 43). I agree with Capt. Carreras opinion that if the autopilot is u/s, the Liberator is u/s. In any case the autopilot won't land it, so one has to have good weather.

We tried her with No. 1 feathered & No. 2 throttled back in full coarse. She needed very firm handling to keep a correct attitude; the rudder trimmer was inadequate at 140 m.p.h.

But with all engines on, an unpleasant characteristic is the fact she has to be re-trimmed if the speed or the power is varied only slightly.

At Lichfield we practised a mislanding & had to do another on arrival at Tempsford at 6.30 since the Halifaxes were taking off on ops. We made a good landing which pleased all on board – but were too late to be collected. So spent the night there. Good dinner & talk afterwards but rain teeming on our Nissen hut woke me up. All the Halifaxes got down safely in very bad weather at dawn; several of them damaged by flak. About the only comfort the officers have on this widely dispersed of hutments is the food which was unusually good.

This trip enabled me to complete my Liberator book next day, after we'd been collected at noon by a Rapide.

The first HALIFAX with HERCULES



12 Sept 43

We'd been writing for weeks to the factory to arrange to handle the first production Mk III. But with no warning at all it appeared on the ferry programme today. It was so misty (2 to 4000 yds) that the pools were not ferrying. We went to look at the machine and make our notes. I decided to take off for Boscombe Down in view of the need to publish the handling details as soon as possible.

The engine installation resembles that on a Stirling, with gill controls at the engineer's panel. We got off comfortably on the shortest runway at Radlett – 900 yds against a wind of 10 – 15 m.p.h. from the East. At rated power she climbed well & temperatures were satisfactory. The u/c lever is higher, so that when the F/E returned it to Neutral it actually went to Down & I saw the port wheel coming down. This distracted me & I failed to raise the flaps until levelled out to cruise.

At 2000 & zero she did 180 m.p.h. 2200 revs gave only about 5 m.p.h. more, so she is slower by 15 m.p.h. than the Stirling with these Hercules XVI. The extra power over the Merlins will doubtless improve her full load take-off & climb. In flight she was rather difficult to synchronise & this caused a little vibration. But the whole machine struck me as very attractive – especially after the Lib, which I would not have flown in such poor visibility.

After passing West of Reading, I failed to see the Andover main line. I was just getting worried when I recognised Worthy Down, so turned N.W. for Andover & followed the railway flying slowly with 40° flap to Boscombe Down.

I was then tempted to go back along the railway on three & two engines (stbd out). I was much impressed by the decisiveness of the new rudder trimmer & the new fins  instead of . But we were only at 2000ft. in mist so I could not check this fully & must fly another to do it. Returning to Boscombe, I made a gyro approach which missed; I had no stopwatch, Dickens was using it. Moreover, the face mask microphone caused my specs to mist over when I spoke. So I had to find the railway again & make my landing circuit using visible objects. Fortunately we were landing down sun, but even so I could not see the aerodrome on my last turn in. Having only 200 lbs. of ballast in the tail, whereas the tests had been made on this machine with 400, I made a special effort to get the tail down. I called on the F/E to wind the trimmer fully back while I was levelling out. It has extra rearward travel. This worked so well that we made a nice landing – actually tail first – which is very unusual on a Halifax. And she stayed down, as might be expected. Of course, it is quite a pleasure to land a big machine on grass instead of concrete, & such a relief to the tyres.

I must try to get a throat mike to use on British aircraft tests. The face mask was very troublesome, but the intercom itself was very useful.

To fly this machine we had no other data than our own knowledge of the airframe & the Hercules in Stirlings. The test pilot who was to give me the gen about it had never flown it himself!

FORTRESS flies itself – with two engines out on one side!

12.9.43

We left Colerne in a rainstorm, flew eastwards out of it & climbed to 4000 feet in good weather. At maximum climb power and 140 m.p.h. I ordered No. 4 feathered, trimmed her then feathered No.3. To my surprise she trimmed so well & was so stable as to fly hands & feet off! Despite 1200 gallons aboard & external encumbrances she gained height slowly & was turning slightly against the good engines. At Thorny Island, I had to make my first crosswind landing in a Fortress. Wind was about 20 m.p.h. at 30° on the left. The approach was good, but in holding off I found considerable strength was required to force on down wind rudder – she has such a large fin area. The result was that she touched down on the main wheels before I expected & bounced twice. The light was not good, bright horizon in front, black overhead. But we stayed on the runway. I was compelled to make it into a “wheeler” & let the tail come down at about halfway down the run. But even so, no excessive braking was required.

FORTRESS Mislanding and Slow Flying Trials

14.9.43

The same trip in another Fort. Good visibility under $10/10$ at 1500 ft. I had 1500 Imp gals. to lift this time – and the start of the runway was uphill. With turbo blowers in & $\frac{1}{2}$ flap she got out comfortably.

Last time I left full take-off power on until wheels & flaps were up – which was unnecessary. This time we shut down to max climb power as the wheels came up & we reached 140 m.p.h. I could then have retracted the flaps but I left them on perhaps a little too long. I must watch this drill more carefully.

En route we did slow flying. With $\frac{1}{3}$ flap she held height at cruising power (27" & 1900) at 130 A.S.I. With $\frac{1}{2}$ flap there was little change of attitude but she needed more power to hold height.

At Thorney, the wind was lighter than I guessed – though straight down the runway. While the F/E was down in the tail checking the tail wheel, I got too close in at 1500 ft. At 1000 ft I decided to make it a

mislanding. Opened up to 30" (revs were max limit 2300) took off ½ flap & built up to 150 m.p.h. we were then down to about 500 ft. so I ordered "max climb power" & retracted the flap leaving the wheels down.

The next approach was good; with 20" on all four, I waited till slightly overshooting & pulled inners right back just after the last turn in as I gave it full flap. At 1000 ft I was getting a bit undershot, so I put inners back to 20" for a few seconds, then closed them.

We entered the field, using outers only at 20" and just about 100 m.p.h. Again I failed to hold the machine just off the ground. She touched on the main wheels, went up perhaps 4 feet, so I continued the hold off, got the stick straight back then she settled nicely on three points, & we closed the outer throttles.

This teaches me that on all the 4 engined jobs one should get the stick right back to make a three pointer, especially with the conventional undercarriage. But in doing so, one must not drop them heavily by stalling too high.

Of course, if one did this with a tricycle like the Lib to an excessive degree, she would tip heavily on the nose wheel.

Incidentally, I noted that the Fort aileron travel is only 80° on the wheel either way – half that of the Stirling or Liberator.

Halifax III on Two Engines Trial

1 Oct 43

Our first trip on Sept 12 had not provided all the facts we needed so today we delivered the second one to Farnboro & made several tests en route. The intercom was a great help & enabled me to issue about 100 orders in 1 hour to the crew without strain. We checked the A.T.A. cruise, the min R.P.M. at zero boost, boost on approach when revs drop from 2400 (-6), slow flying with special note of temperatures. This was in good visibility below $\frac{9}{10}$ at 1500 feet. I went up through a hole into the sunshine on top at 5000 ft but came down again since there were not enough holes to keep check of our position. Thus we were reluctantly compelled to make our trials with 1 & 2 engines dead (on same side) below the cloud, which was too low for comfort.

The most valuable test was of safety speed; we found it be 150 instead of 130 with Merlins due to the extra drag of the big Hercules propeller. This impressed Bob Morgan as the most important discovery of this test flight; he was more than pleased with our whole test programme & its execution. I had him continuously on watch at the engineers panel recording temperatures under the various conditions of flight & operating the gills. Intercom kept him in touch with what we were doing; the F/E was fully occupied handling the engine & auxiliary controls on the flight deck.

We finished off with an excellent landing (F/E trimming back just before hold off). So this was my most self satisfying flight test for a long while – and the busiest.

Halifax II to Yorkshire.

3 Oct 43

I was pleased to be offered this P1 ferry job from Marwell since it enabled me to compare the safety speed with Merlins against that found two days before with Hercules. As I expected the Mk II could be held more easily at 130 than the Mk III at 150. I also wanted to watch the boost when feathering with throttle set at +2; it dropped steadily to -3½ which is atmospheric at 7000 ft. On the Hercules at 1000 ft it stayed steady at zero.

This confirms that the best practise is to close the throttle steadily after pressing the feathering knob, so that the throttle is fully shut just before the propeller comes to rest.

I had F/E Instructor Lies who enjoyed these experiments – including a safety speed check, feet off the rudder. As soon as he pulled back No. 4, I pulled back No. 1 and we swung scarcely 10° & lost no height. Useful demonstration of how to recover control without physical strength or effort.

Before take-off Lies found flap accumulator pressure only 250 lbs instead of the minimum of 400 lbs. The Contractor could not blow it up, having no adaptor! Lies & I felt sure this would give us 40° flap so I decided to take it, since it was P1.

Actually we got 58° out of 80°, & made a slightly wheely landing. In my desire not to overshoot due to lack of full flap, I did not trim back enough.

Poclinton to W.W. took us 2 hrs 10 mins with a 20 m.p.h. wind just ahead of the beam in the Fairchild – which did 4½ on both tanks without refuelling.

1,500 Workers hand over Mosquito

4 Oct 43

We hand pump wheels down!

The workers to whom I gave a talk a month ago at three factories were conveyed to Leavesden today and the shop stewards handed a Mosquito III over to me at a table draped with the Union Jack. The R.A.F. Central Band played the R.A.F. march as I walked out to the machine. Quite an occasion.

A R.A.F. flight of three did a hair raisingshoot up in the murky weather, and flew in formation each with his starboard prop feathered. After that, I said to Mr Dupré of DH that all I could do would be to show a bit of slow flying.

But it was not to be. I managed a satisfactory take-off & made one circuit at +9 boost about 250 m.p.h. then both hydraulic engine pumps failed & I could not get the flaps down for slow flying. So I headed West for Hullavington; fortunately I had F/E Laker on board so he manned the hand pump & gave me 20° flap until we ran out of the mist at Didcot. Until then, visibility varied from 1 mile in patches to 2 miles. Quite thick enough for so fast a machine. At Swindon we started the laborious process of hand pumping the wheels down, then the flaps. This took about 1500 strokes & was completed just as I finished my circuit at my destination.

A good landing was made in a very light crosswind into the setting sun.

Bob Morgan made his first solo trip in thick weather to collect us – which pleased me as much, as getting my wheels down! Later, our trouble was traced to contaminated hydraulic fluid. Sabotage – from filings in fluid tank.

Vengeance Mark IV

7 Oct 43

This big American Dive Bomber is not as bad as the Bermuda, but it is a waste of a good engine, and good workmanship.

It has electric trimmers for rudder & aileron, with no indicator! And the switches work in the unnatural sense, She needs plenty of room for take-off, but is quite easy to land and runs straighter than most American single engine jobs after touchdown.

I made only one landing at W. Waltham at 100 m.p.h. which needed plenty of engine to check sink, so used 115 m.p.h. landing at Farnboro which gave little or no float.

MUSTANG with MERLIN

10 Oct 43

The Mustang is the only American single seater which compares with our fighters. The Mk III has the Packard built Merlin instead of the Allison so it was interesting today to compare it with the same engine in the Spit IX.

At A.T.A. cruise zero & 1900 the airspeed was equal 210 m.p.h. It is said that at altitude its max speed is higher than the Spit. The wing is more of a high speed section. As a result she needs more room than the Spit to take off & land. And the view is not so good.

The controls are very light & well harmonised; all three trimmers are well placed & excellent in effect.

The electro hydraulic automatic control of the radiator shutter & oil cooler gills were interesting; also the other two boost pumps, each having two pressures, normal 8 lbs, take off or emergency 17 lbs. But they have not eliminated the mixture control as on the Spit; there is the usual 4 position lever.

The visibility was just under 2 miles & the ceiling 1000 ft. I did one take-off opening steadily to 60" boost; the next I did at 50" but opened up quicker, which makes it a trifle more tricky on rough ground. Two good landings on White Waltham.

Spit XIV gives Trouble

24 Oct 43

1st Prototype with 5 blade Propeller

Transcriber's note: The entry below begins with a statement "No compressed air = No Flap = No Brakes"

The new Spit has the Griffon 63 – 2 speed 2 stage blower – the whole weighing a 1000 lbs. heavier than any other Spit. At combat boost of +18 she has 2,200 h.p. – just double the power she was designed for.

I took off o.k. at Worthy Down & she climbed 4,500 ft. just a minute at 2600 & +9. After a decent landing in a light crosswind at Lasham, I noticed she used about 1,600 yds. of the 2000 yd. runway with a fairly firm braking most of the way.

A good take-off then some slow flying. My luck was out; the diaphragm of the flap valve burst, air pressure fell from 300 to 50 lbs & up came the flaps. I got the air built up again with flap valve to UP & considered how best to make a flap up landing.

I made a dummy approach at 105 m.p.h. & decided that it was feasible to land it back at Worthy Down. So three circuits to warn the crash crew, and I went in to land. Since I was worried mostly about being able to stop on the wet grass, I took care to come in as slow and as low as possible. She touched down normally, ran a few yards then went on her nose as the undercart ploughed into a soft ridge. The five prop blades flew off and I had a severe shaking as she skidded to rest.

Walking back with Mr G. Quill their Chief Test Pilot we could see from the wheel marks that she touched down 25 yds. before a ridge. As she came to the ridge, the wheels ploughed 9" deep into the soft surface & the oleo legs were forced outwards by her speed & weight.

All very bad luck. I do feel that the combination of circumstances was unfortunate. The first aeroplane I've ever broken; It had to happen sooner or later I suppose. To be hoped that I shall be found "not responsible"

Four Engines and Seven Pupils

4 Nov 43

I took all our ground instructors together in a Stirling today from Rochester to Mildenhall to make clear to them the division of duties between Captain & F/Engineer, and to demonstrate certain technical points, engine failure, propeller feathering, Hercules engine handling etc.

It was fair enough weather after the morning haze blew away with broken cloud at 3000 feet. We did a good take-off at Rochester with me lecturing the entire class down the intercom. I allowed each of them to handle the controls for five minutes. I divided the party into two; the first was on the flight deck for starting & take-off, the second came up for the landing, dispersal & stopping.

Between Bishop's Stortford & Cambridge, F/E Laker & I demonstrated engine failure. Feathered No. 4 engine then No. 3 as well. She flew very comfortably & held height with no great difficulty; full rudder trim was used, climbing power on the two good motors did not cause the temperatures to rise unduly.

At Mildenhall, the Squadron was practising crosswind landings on the long runway – at least 40° across 20 m.p.h. wind. Very awkward with a Stirling but we managed a reasonable touchdown with one slight bounce & stayed on the runway.

We rushed back to Rochester by Anson for another Stirling but the flap on it was u/s – and so we didn't get home to W.W. until 5.35, ten minutes after last landing time.

Ground Instructors – Demonstrations in Flight

1 – 8 Nov 43

In addition to the Stirling trip just described, I took the ground lectures two at a time in the Oxford. The first flight was to demonstrate points common to all aircraft, such as various stalls, trim effects & slow flying etc. The second flight of about an hour covered multi engine techniques, especially engine failure at various speeds, powers, & altitudes. They seemed to enjoy it, especially Capt. Sloper who thanked me very warmly.

Two Mosquitoes ; Feathering Trials

7.11.43

Following recent bad weather, emergency ferrying was in effect today to catch up with arrears. I was given a couple of Mosquitos from Leavesden to Colerne in lovely sunshine but a bitterly cold North wind – first breath of winter.

A whole load of us were taken over to Leavesden in a ferry Warwick. The good weather tempted me to feather the starboard prop on my Mosquito. She was easier to hold than an Oxford & has a most brilliant performance on one motor. But when I tried to unfeather, I had to hold the knob in for what seemed like a minute before the propeller started to move.

On my second Mosquito, I had little Joan Hughes as passenger who wanted to see the feathering. And I wanted to whether it would be as slow to unfeather. It was: I began to think she was not going to start up again and was considering trying the electric starter. But, thank goodness, she did unfeather. I must try to find out why the Merlin in the Mosquito should be so much slower to unfeather than in the Halifax. Perhaps some new C.S. control unit is fitted. It occurred to me later that the dynamo is on the stbd engine.

Taxying out in Fairchild to come home, we found the tail wheel flat. But we decided to take off, flaps down & stick forward, & did a wheel landing at W.W. which was better than coming home by train.

Stirling Cross Wind

24 Nov 43

To complete the job of 4.11.43, I took Pickup, Slope & Gauntlett from Rochester today & repeated the programme of demonstrations. Landing at Hullavington was tricky – a 30 m.p.h. wind at 40° to the long runway. I used only half flap & made a reasonable approach and hold off. But she would not sit down, due to the light load (500 gals.) & with ½ flap she did not lose speed so quickly as usual.

So she began to drift to port during the prolonged hold off, & we touched down with the port wheel just off the runway. But then she ran straight & stopped without difficulty.

Halifax III Crosswind

25 Nov 43

Against a 20 m.p.h. wind we got out of White Waltham easily with 800 gallons on the short N.W. runway. In lovely weather we reached Eastleigh in 20 mins. & were glad to see that they had taken all the aerodrome balloons down for us. But the landing Tee was set on the longest run (South) and the wind was west about 10 m.p.h. Since the surface was wet grass and the run only about 1200 yds, I was more worried about being able to stop than by the crosswind drift.

The approach was rather overshot despite full flap, so I closed the inners & then opened them just as were entering the field at 115 m.p.h. in a steep attitude with very little power on. The touch down was good – a trifle wheely; we stopped with 100 yds. to spare.

Throttle Fails on Stirling I

4.12.43

Five minutes cruising Westwards from Bourn, the boost of the stbd outer engine started to rise despite closing & priming the Exactor throttle control. My Engineer Laker has much experience of installing these throttles & went to work with his tool kit. Found a loss of fluid and no spare can to top up with. So I suggested that he should pee in it, but he had the good idea of using what was in the drip tray. All his efforts were in vain; evidently the pipe was broken at the engine end.

So there we were, unable to alter the boost, which automatically had gone to climbing power (+2). Arriving at Hullavington in excellent weather, we were lucky to find the East wind on the long runway. I made the circuit with inners shut down & outers at climbing power. Just before the last turn in, we opened up the inners, turned the fuel of the defective engine off, & ignition off. On the final approach, with full flap down, we feathered the dead propeller & motored in on both inners. When I wanted to reduce the flap to $\frac{2}{3}$, Laker found it would not come up – probably the batteries were flat. So we were lucky to get in O.K. by opening up the inners to +2.

Sunday Night in the Train & Blackout

5.12.43

Stirling III from Swindon. A very neat landing (trifle wheely) at Stradishall pleased me since I had no need to touch the throttles. We came in on the long runway head to wind at -6 boost: I ordered “Close Inners” just before crossing the edge, then “Close Outers” during the hold off.

But our following Fairchild did not come; phoning to W.W. after waiting an hour, I learned that the taxi pilot (300 hours) had landed at Thame for bad weather! He’ll never make a ferry pilot; with that amount of experience I was delivering Spits (not Fairchilds) under more adverse conditions. The visibility at 2000 ft was 3 – 4 miles all the way, but towns such as Luton & Oxford were obscured under low lying fog & smoke. And we had an actual of 7 miles at our destination.

So we caught the 4.45 Sunday train on the single line at Havershill 8 miles away. Stopped at every station to the Colchester main line at Marks Tey at 5.45. Caught the London train, Liverpool St at 7.40. 8.20 from Paddington to Maidenhead at 9.40. Home at 10.50. The connections could have been much worse but annoying to be let down by the Fairchild. It was moonlight & dry too.

The YORK

Sun. 12. 12. 43

We had been told that we would not be required to ferry the newest airliner until March, but on Thursday the Air Ministry phoned to say we were to do a "V.I.P." job. Apparently this means a "Very Important Personage" – in fact, the York was for General Smuts & his entourage.

So James Campbell & F/E Laker went up to Manchester by the midnight train, since fog had stopped flying for a week. I read the Provisional Pilots' Notes but next day the weather continued to be impossible. On Saturday morning it was a little better so I set off with the C.T.O. in an Anson but we could not even get through the Reading Gap – the first snow storms this winter. In the afternoon, we tried again & got as far as Burton on Trent but the hills were in cloud & we had to come back.

Today we managed to get there under a 1500 ft ceiling with a cold N.E. wind blowing the thick smoke to the lee of the Black Country.

J.C & F.L. had got all the technical details of the machine, & said that the firm's Chief Test Pilot Capt. Brown wanted to give me a circuit on it. I said I'd be glad, but if he could not do it without delay, I was ready to deliver the machine without it.

The wing & undercarriage is from the Lancaster; but the tail has 3 fins & a civil fuselage is fitted. I was much impressed by the luxury & dignity of the passenger accommodation. She can carry 50 passengers, but this special job had only six beautiful grey leather armchairs in forward saloon & in the after saloon, both of which are impressively high & roomy – at least as big as a Pullman coach. Amidships are two separate lavatories, with wash basins, and a separate cloakroom. At the tail there is the neatest yacht like kitchen I've ever seen, with electric "hay-box", a refrigerator, covered sink with cold, hot & boiling water, & fitted cupboards of crockery etc. behind that are the luggage rooms. At the rear partition of each main compartment there is a big electric extractor fan for ventilation on the ground. The control room forward has radio operator to port & navigator to starboard with the two pilots in front at a higher level.

From the Captain's seat, the view through the big flat windscreen is excellent, & every instrument on the great flat dashboard is easily seen because there is no central control pedestal. The four throttles and the four pitch levers are hung from the roof, together with the u/c & flap controls. This arrangement would be o.k. if they were light & positive in operation, but unfortunately the throttles are heavy & the others crude & awkward to manipulate. The other awkward feature is that the pilots' seats are not adjustable for height or distance, so I found it necessary to sit on a cushion.

Capt. Brown said I could fly it round but I said I'd learn more if he flew the circuit. And so we did; F/E Laker's comment was "He demonstrated everything that should not be done with an aeroplane!"

He took off without running up the engines, without clearing them & without cockpit drill. Before we got to the end of the runway he started quite a steep climbing turn to port, presumably to keep sight of the aerodrome in the Manchester smoke. His Flight Engineer only touched controls once & was sworn at. After 3 complete left hand turns, he made a right hand circuit & landed power off, at 120 m.p.h. slightly overshot, & used the brakes so harshly as to lock the wheels. It was clear to me that if he could get away with all that, there was something very tricky about the machine. So I thanked him & said I was quite happy to take it : He climbed out.

But by then the smoke had blown directly over the airfield & the visibility was worse than any I'd ever taken off in with 4 engines. We could only occasionally see the far end of the runway. I decided to take off although I'd not flown the type before, because there was blue sky faintly visible above, I could see a Whitley fairly clearly at 800 ft on the circuit, and it was an urgent job.

The take-off was good (I did not open up fully in 50 yds like Capt. Brown) ; there was very little swinging tendency, easily held by the rudder. Having just flown up the route, I decided to set course due south to pass over Cosford & West of Birmingham. The visibility was 3 – 4 miles at best but only 1000 yds. at Kidderminster so I followed the Severn Valley till it improved at Worcester. Therefore I had to devote all my attention to the navigation & we were unable to do our full programme of tests. In such weather, the excellent forward view, & the gentle manners of the machine were the only things which made it possible to deliver it. What a difference from the Liberator, as Bob found out when he flew it very neatly on cruise at 1500 ft.

She cruises at 195 m.p.h. at 2200 & +2 (about 45 g.p.h. per engine) & about 180 at 1900 & zero. Max boost in weak is +7 which is permissible from 2600 down to 1800. Laker found it difficult to synchronise the motors since our forward position prevents him looking sideways through the propellers. With flaps down 25°, she flew slowly very pleasantly at 140 m.p.h.

Arriving at Lyneham we tried a mislanding; +9 & 2600 was quite enough power. The only thing to watch is the nose up trim change as the flaps come up; so lift them in two stages.

Our final approach was at 120, which was not too fast against a 20 m.p.h. wind on the long runway. The touchdown was very satisfactory; I did not touch the throttles. With light braking we used only about $\frac{2}{3}$ of the run & turned off down the other runway.

After about $\frac{1}{3}$ rd of the landing run, she began to pitch a bit, as though the hydraulic damping of the u/c was ineffective.

Quite the most attractive of all the 4 engine types!

Christmas 1943

I nearly got stuck out on Christmas Eve, but had to turn back owing to fog in a Lancaster III. Landed towards the S.W. at White Waltham. No wind & wet grass but managed to stop without too much difficulty. I cut the throttles before all descent had ceased, & she floated quite a bit.

Then three good days at Penn; Mum & Dad enjoyed our turkey & the company at the Crown.

DC3 or DAKOTA III

28 – 29 Dec 43

How well I remember the admiration with which I viewed the first D.C.2 airliner to come to England about 1935. It came in second in the race to Melbourne and was a tremendous step forward in airliner design & performance.

So it was with special pleasure that I flew its more powerful brother today – the D.C.3, one of the most useful transport types in this war. There was only time for a single circuit in the evening mist at White Waltham. F/E Laker was very busy.

We did our A.T.A. Handling Trials next day. Mist still lay on the aerodrome but it was clear over the hills with $\frac{10}{10}$ cloud at 2000 ft.

A most attractive aeroplane to fly, with no vices & an excellent performance on one engine. She resembled a Wellington as it might have been built by Lockheed.

With a light wing loading, she is not fast (about 150 m.p.h. cruise) but the take-off & landing are perhaps the easiest of any big twin. She got off in $\frac{1}{3}$ the run at White Waltham with 800 galls (about 16 hours fuel) with no tendency to swing.

A three point landing occurs if the stick is brought right back (quite a long travel) and she sinks gently on to the wheels. These good characteristics result from (1) Engines set in close to the fuselage (2) a long tail (3) light wing loading (4) reasonably light controls.

An unusual characteristic is that power affects the trim more than flap movement; close throttles nose goes down, presumably due to the low position of the engines in relation to the high fuselage. This also gives a good view of the wing tips. Forward view is satisfactory, the windscreen is close to the face. Another safe feature is that wheels down or flap down causes a nose down slight change of trim.

But taxiing is not too easy; the brakes grab when cold and at low speeds and lack feel. The other snag is that there are too many knobs & taps, and not too conveniently arranged. The F/Engineer is kept very busy. Climb at 125. Approach at 90 m.p.h.

With the C.O. on the Dakota

30.12.43

The C.O. wanted to fly this machine, so he came while we completed our trials this morning & then delivered it. In order to let him see us do our stuff, I throttled the starboard engine back soon after take-off, then feathered it at about 800 ft. I knew I could hold it at max climbing power & speed, & that the batteries were charged enough to unfeather it.

The machine responded beautifully even with 700 galls aboard.

Stirling IV

New Year's Eve

We collected this new transport version from Mt Farm & delivered it to St Athan in 50 mins. It is identical to the Mk III from the ferrying point of view but has no front or top turret. She is thus 1000 lbs lighter & cruises about 10 m.p.h. faster.

Quite a good cross wind landing.

I was annoyed then to get a message that they wanted me to take a Mustang I (guns loaded) back to W. Waltham. I had no overalls but managed to borrow a chute. I was afraid I might miss the Party tonight. By the time the Mustang was ready & had been towed from dispersal, the cloud had become $\frac{10}{10}$ at 600 – 800 feet. So I had quite an anxious time crossing the channel to Bridgewater & picking up the single line railway to Frome, then creeping up the main line in the valley past Devizes & Marlborough. The hills either side were in the stuff and I was unable to get the undercarriage up. The old selector is different from the later; the handle has to be lifted, not moved sideways. So did 200 m.p.h. wheels down & 30". In the worst patches I used $\frac{1}{2}$ flap to slow up to 150 m.p.h.

Nice landing across a light wind at W.W. Fortunately on the long run, for the brakes failed to grip on the muddy ground, and she ran a long way.

New Year's Eve Party

The high spot was the circus devised by Bob Morgan who was unrecognisable as the principal clown. Our first evening out for months. Very enjoyable gathering, and a clear night to drive home.

Kent in Quick Time

21.1.44

We delivered a record number of aircraft today catching up on the programme. Most unusual summer like weather; I wore overalls over my uniform, flying boots but left my overcoat at W. Waltham. I took a mosquito out of W. Waltham to W. Malling (Maidstone) – without a compass; it was the electric Pioneer type and I could not find the switch. Made a very pleasing landing on the Summerfield track runway.

Thence by Fairchild to the far corner of Kent to collect a Typhoon at Manston. Saw the Canterbury balloons for the first time. Lunched with James Mollison in the Squadron mess while machine was prepared.

Two squadrons of Spits came in to refuel – a pretty sight; also a few American day bombers – Marauders. We were giving the French coast an extra dose today.

Just as I was getting into my Tempest, the loudspeakers announced “All guns to the ready; VISITORS expected” – which struck me as the nicest understatement I’d heard since the Battle of Britain.

Home to Langley in 20 mins (G.S. 270 m.p.h.) passing the scene of my earlier flights – Croydon, Kenley, Biggin Hill.

Two Stirlings

28.1.44

Rochester, Hullavington, then Swindon to South Wales against a moderate West wind in fairly good visibility but cloud base falling westwards to 1500 feet.

Neither landing was pretty; I think because it is a month since I did a Stirling. Both seemed to float & I tried to put them down too soon. A long runway is a great comfort; you don’t mind then if she floats a bit. Load was a bit light 400 galls landing A.S.I. 120 over the hedge.

At St Athan, they made me taxi a mile down a track narrower than our tailplane, through two gates, and one hedge, up and down hill. Between trees & telegraph poles, & alongside a ditch with men in it. I used the outers only & had a look out to starboard + F/E Laker on the intercom looking aft – or we could not have done it.

The difficulty is not to get the wheels through a gate; it is the tail which swings feet either way if the nose moves a few degrees left or right.

The WELKIN

29.1.44

Down to Yeovil today in decent weather with Bob Morgan & James Campbell, to do our stuff with this – the only British single seat twin engine fighter.

She looks like a cross between the Whirlwind & the Mosquito. Quite a big span & pressure cabin for altitude. A novelty was electric operation of all 3 trimmers; no reserve method of lowering flaps, & “spring tab” ailerons.

The take-off was easier than a Mosquito & I did two landings which were really greased on. But she does not handle like a Mosquito in flight. Mine had non feathering 4 blade props, so I expect the production job will be better with one engine dead since it has 3 blade feathering props.

It is unstable in pitch below 150 m.p.h. & there is quite a strong nose UP trim change as the flaps go down. The cockpit layout is more convenient than the Mosquito but the throttles & pitch levers on mine were too stiff for sweet control. She cruised at 200 m.p.h. at 2000 r.p.m. & zero boost on the Merlin 73 engines.

Enjoyed a boisterous lunch with Test Pilots Penrose & Hill. Hill was enquiring about becoming a ferry pilot!

Liberator VI

8 Feb 44

The Mk VI has a nose turret (and a nose 3 feet longer) and other minor differences. The one I went for was u/s but they gave me another at Litchfield. There was a north wind of about 30 m.p.h. on the surface at least 30° across the runway – I think the strongest crosswind I've ever had for a 4 engined take-off.

The Lib handled very well once we got over 20 m.p.h. on the take-off. Below that was very tricky; the nose which had little or no self centring action and would swing either way. Response to the throttles was too slow to keep straight, & response to the brakes was too quick. The toe brakes are powerful but lack "feel".

In flight, my only mistake was in not retracting flap soon enough; on accelerating to cruising speed & reducing to cruise power, I was inclined to lose height through not realising that she cruises level with the nose up in a climbing attitude. Forward view is nil; one can see only to the left of the nose.

F/E Gulson was quiet & efficient. We had $\frac{9}{10}$ at 2000 ft most of the way to the South Coast, with visibility about 6 miles. But at Beaulieu the weather was excellent & we did satisfactory landing. Our own Anson to bring us home.

YORK on 2, 3, & 4 motors

10 Feb 1944

On 12 December the weather prevented us doing full trials. Today – unexpectedly, we got the next York as a Plw job Ringway to Lyneham. So we battled North against a gale of wind – Bob Morgan; JC, FL, Hatch & Bain – a very rough ride. Only to find the machine not ready until 2.30. So we had lunch with the Pool C.O.

She was ready by 1500 hours but we were asked to wait a few minutes for Dam Buster W/Cdr Gibson V.C. to inspect the machine. He was very pleasant & did not delay us.

The take-off was good but I had to use the rudder more freely than usual to keep straight into the strong wind. We found 160 the best climbing speed & flew South with the gale dead aft. At +2 & 2200 A.S.I. 195 m.p.h. our ground speed was at least 4 miles a minute. We tried other cruising powers, then at Droitwich I handed over to Bob who flew it to Swindon. Then I took over to check the dead engine performance. We flew along the railway in sunshine at 3000 feet with visibility about 8 miles. With No. 1 feathered she did 180 m.p.h. at cruising power & would climb comfortably at 160 m.p.h. & climbing power. With Nos. 1 & 2 feathered she was inclined to wallow in the bumpy air but held height at 2600 & +6 at 160 m.p.h. At 2800 & +9 she would just climb but there was some foot load on the rudder (full rudder trim & 5° bank).

After unfeathering & warming up, we checked the safety speed 135 m.p.h.. I could just hold her with my full strength on the rudder.

The runway for landing was into the strong wind, so I decided to use full flap. The bumps made it impossible to make a steady approach. I was using about half aileron each way & quite a lot of rudder movements. We came in at -2 boost & 120 m.p.h. which was quite fast enough. At about 400 feet, I opened up the two outers myself & then closed them just at the start of the hold off. During the hold off, Laker closed the inners when I gave the word and we made quite a decent touchdown at 100 m.p.h. – the tail wheel not quite down. This slightly wheely touchdown was wise under the prevailing wind conditions.

We had to taxi a long way round the perimeter track. This was not made easier by the tail wheel self centring action being over strong. It was difficult to start a turn; once started the turn had to be checked quickly. Home in our own Anson.

Liberator Landing on Locked Wheel

15.2.44

She got off at Lichfield only just comfortably on the shorter runway. South of Birmingham visibility was about 5 miles but cloud base 1200 – 1500 feet. So we scraped over the Cotswolds with not much height to play with. One had to fly it all the time to keep the height exactly & to steer a good course. I was glad I prepared my route card.

At Beaulieu the visibility was 8 – 12 miles & managed a sweet touch down against a 10 m.p.h. wind. She touched down lightly 300 yds inside the 1400 yd South runway. I applied the brakes lightly only to find the starboard locked on. F/E Laker shouted “starboard wheel locked skipper” about halfway down the runway. My right foot was clear of the pedal so all I could do was apply port brake to keep straight. Wonderful to relate she skidded 1000 yds before the tyre burst at about 20 m.p.h. & we ran gently off the runway & swung round to starboard.

Climbing out we called the crash tender crew to witness that the starboard brake drum was cold and the port was hot, Perhaps it locked on when we tested the brakes before landing – or when I used them on take-off before retracting the undercart.

All the R.A.F. were very decent about it. The Control Officer said “We’ve had several other cases”

Later: The Accidents Committee found me “not responsible”

Two Mosquitos

27 & 29 Feb 44

Both were fighters (Mk VI). The first had been snagged by the pilot at White Waltham for “A.S.I. suspected reading high” – so I had to test after the ground crew had checked it by manometer. There was a light S.W. wind with moderate visibility but only 1200 ft ceiling.

The A.S.I. seemed OK on take-off and up to 300 m.p.h. So to prove it I came in a little slower than the recommended (120 instead of 125 m.p.h.) especially in view of the wet grass. We did an excellent short touch down & stopped on the long run without great use of the brakes (40lbs). But I didn’t cut the throttle until all descent had ceased, then she shuddered as she stalled to the 3 point landing with the stick right back.

Two days later, in excellent weather, I delivered another one to Hullavington with about 300 galls on board.

To my astonishment, I dropped it on the main wheels, caught it on the bounce with the throttles, then landed O.K. Analysing this, I think (a) I had 120 m.p.h. instead of 125 m.p.h. (b) I had to open up a bit on the approach below 500 feet. (c) I inadvertently closed the throttle before all descent had ceased. The short travel & stiffness foxed me. Evidently a power off descent need distinctly more than 120 m.p.h.!

I did an hour of tests this afternoon because we are going to rewrite our Handling Notes, prepared by my predecessor, and because C.F.I. Gale having flown only one circuit complained of poor take-off and climb, plus high head temps.

I satisfied myself that with both engines working, the take-off is O.K. but one must unstick at 85 m.p.h. We had our wheels up before crossing the hedge on the long run (40°) with 10 m.p.h. at right angles. Then the trick is to retract the flaps at 130 m.p.h. after reducing to max climb power, then to climb at 150 m.p.h. which gives nearly 1000 f.p.m. head temps stayed within limits; take-off gills closed. Our fuel load was 400 galls, which is the max the School will use, & we had Hercules XI derated to run on 87 octane. Safety speed may be less than 150 probably 130 m.p.h. Single engine speed is 130 – 140 flaps up or set to max lift. At this condition she wallows and is unstable in pitch anyway.

We flew it with starboard feathered & flaps at max lift, then later with starboard feathered & flaps up.

The landing at right angles to the wind was easy, fully tail down. After the nose wheel came down we only used 15 lbs on each brake to stop easily.

My opinion is that:--

- (1) With both engines, she is too easy for an advanced trainer.
- (2) She need no more room than the Hudson, if correct technique is used. Which means taking a few liberties not permissible on other tricycles.
- (3) The performance with one engine dead is too poor for modern training.
- (4) The forward view is inadequate especially climbing.

Since the mosquito trainer is the exact opposite of 1, 3, & 4, it should be used on the School to balance the Albermarle.

DIARY NO. 3

The Buckingham World's Heaviest, Most Powerful Twin

14 March 44

Three times we'd been down to Bristol; on the first trip the weather went u/s, on the second the aircraft went u/s, but the third time was lucky. The Test Pilots at Filton lunched us royally in their spacious & comfortable mess and we had most constructive conversations with the Chief Unwins, and Pegg & Swiss – all charming & competent men.

The Buckingham has been a long time coming out and we gathered that extensive modifications had been made to the controls – and others were yet to be made. The machine looks like an enlarged Beaufighter but is in fact the heaviest twin engined bomber. This was impressed on us when we saw it standing under the wing of the Curtiss Commando (CW 20) & Peggs remarked that the Buckingham's all up weight (43.000 lbs) was the greater!

At ferrying load she weighs 30,000 lbs and one cannot therefore expect it to fly like the fighter it appears. Wing loading is about 47 lbs to the sq. ft.

It was my first flight with the Centaurus engine – an 18 cylinder development of the Hercules, giving about 2200 hp with fan assisted cooling in a very clean cowling. The engines and the cockpit layout seemed to me to be the best parts of the machine. She is not very pleasant to fly – one has to concentrate all the time because she is unstable in all axes and at all speeds. Moreover the spring tab controls give an “indirect” sort of feel.

On take-off & landing she is directionally unstable & needs the tail wheel lock they intended to fit later. Larger tail areas may improve the characteristics in flight.

Unwins agreed with me to put the safety speed up from 150 to 170. At climbing power and 170 A.S.I. she needs very firm handling if a motor cuts. The big 4 bladed propellers give a lot of thrust (or drag).

For my tests the weather was calm but rather too hazy for comfort – visibility about 3 miles. I chose an A.T.A. cruise of 1900 & zero = 210 mph. On both my take-offs it was necessary to “lead” quite a lot with the stbd throttle.

The landing is not particularly difficult – final approach at 110 mph – but it is a two handed job to get the control column fully back. And after touch down one has to use full rudder & some brake to keep it straight.

D.B.7

BOSTON IV

24-3.44

The first warm day of spring, I collected the first Boston IV from Aston Down. We had no flying gen about it but a list of the mechanical differences.

I found it could be flown on the same figures as the Mark IIIA. External difference was a mid upper turret and a big external belly tank.

A very heavy pressure was required on the toe brakes to produce any result. This was tiring while taxiing. The hydraulic gill controls were awkward to reach & to operate (below & behind on right). In flight the controls were light & aircraft flew very pleasantly with an excellent turn of speed – 210 mph at A.T.A. cruise 1800 & 27”.

But the weather was so hazy I slowed up to 150 mph with ½ flap & followed the railway to Boscombe Down.

My first approach was out of line so I went round again, flaps up & wheels down.

I then came in at 110 m.p.h. When she touched down the nose went down very sharply which makes me think I held off a trifle high & rather nose up. She ran down hill very fast and straight so I used the brakes firmly on the uphill second half of the run. Very light west wind.

WILDCAT VI

26.3.44

The Martlet (renamed Wildcat) was superseded we thought by the more powerful Hellcat which I flew last year. So were surprised when a Mk VI turned up at Liverpool. It appears to be a Mk IV modified in only having one tank & an electric propeller.

Not having flown the earlier Marks I was interested to get hold of this one. I ferried an Oxford up from Luton to Speke (1¼ hrs) in lovely summerlike weather with patches of haze lying low in places. I flew up in my shirtsleeves at 3000 feet in brilliant sunshine; the early morning smoke at Speke had given visibility of less than 1000 yds but when we arrived at noon it was two miles.

All afternoon the visibility improved as a west wind developed so I brought the Wildcat down in an hour to W. Waltham. Flew at 5000 ft at 180 m.p.h. at 1600 rpm & 26" boost. She trimmed very sweetly but is much too slow for a modern fighter. Max continuous power gave only 240 mph. Climb about 2000 fpm. Stall: 72 mph flaps down 80 mph flaps up.

The landing at W.W. was easy enough head to wind; final approach 75 Kts.

But she is a beast crosswind; I could not taxi crosswind without locking the tail wheel. The undercart is so narrow that all my weight on the downwind brake would not stop her weathercocking.

The take-off at Speke was at 90° to the 15 mph wind. I asked permission to use the other runway but this was refused.

So I had to attempt it and all went well although the wind was on the right – the best side. I had full right rudder trim, full right aileron & opened up very slowly.

Neither did I like going straight out over the Mersey at high tide because (a) one has to wind the wheels up by hand (b) Prolonged taxiing might have upset the engine, so I cleared it well & checked the gauges very carefully (c) I had not been able to run it up beyond 30" (2300rpm) for lack of chocks & tail mooring.

Curtiss HELLDIVER

6 April 44

A.T.A. aircrews were ordered to take a week of their summer leave during April – since it might not be possible to have it after the Second Front is opened. Monday I went to a local wedding; Tuesday up to town to see Mum & Dad; Wednesday changed a broken front spring on the Riley & polished it etc. Thursday I was called back to do the Helldiver.

We crossed the Chilterns at 1000 feet under $10/10$ cloud & through the Cotswolds by the Moreton in Marsh valley – visibility about 2 – 3 miles. North of Droitwich the cloud base was 2000 feet & $5/10$ broken so I took the Proctor up on top at 5000 feet. She did 140mph at -2 boost in positive coarse (1500 rpm) to stop oil slinging.

At Chester the weather was fine but the Mersey was covered in thick industrial smoke. It was a most impressive reduction in visibility but just flyable. We found half of Speke in the clear and half under the smoke.

We had absolutely no information about the Helldiver, so I was glad that James Campbell had studied the machine on his last visit & was able to show me the odd hydraulic system etc. It shows green lights with wheels up & red signals on the wings with wheels down! Handley Page slots are coupled to the undercart & extend when the wheels are lowered.

The cockpit was quite conveniently arranged except that the rudder trimmer is awkward to operate, the ammeter difficult to see, the pitch lever is raised to lower the rpm, and the gill handle very stiff.

The test pilots could not tell me the stalling speed, & what they said about the fuel system was wrong. This surprised me somewhat, considering their high salaries. Chothia (ex A.T.A.) showed me his letter of engagement £125 per month, which he said had since been increased to £200. Evidently the testing they do is not at all experimental & scientific; they merely prove that the machine will fly. No doubt they have to rush the work through; Speke assembled 384 aircraft last month.

I ran the Cyclone 14 up to full boost - 45" 2600 with the tail unmoored & so no men on it. Taxying out I found the power operated brakes to be the nicest toe brakes I've had; not that I like toe brakes. They were very powerful but light to operate; sensitive, reasonably progressive, with no tendency to snatch. This was all to the good since the big nose entirely blocks the forward view of the perimeter track and it is necessary to zig-zag. The view to either side of the nose is satisfactory.

On take-off the only difficulty was to keep straight with firm use of the rudder – wind about 15 mph at 45° on the right. She climbed 1500 f.p.m. at 100 knts & max climb power, gills ¼ open.

Flying South to the Wrekin, I tried 3 cruising powers: 1800 & 27" gave 160 knts. The controls are heavy and at slow speeds, sluggish in response. A little unstable in pitch but trims well. Slight nose down change of trim when wheels or flaps are lowered at 110 knts. I don't know the max speed for flaps or u/c but 110 reasonable.

South of Droitwich I tried slow flying 100 – 110 knts with 30° flap 2000 rpm & 25" boost. She warmed up a bit so I opened the gills a quarter & went into Auto Rich.

At 4000 feet over Moreton in Marsh I did the stalls; 82 & 68 knts. There is a warning shudder, then the wing goes down suddenly, despite the slots open with wheels down. Recovery was normal.

At Abingdon, I did a mislanding not exceeding climbing power; the trim changes were easily held on the stick. The weather was now thick haze – visibility had gone down to 2 miles, so I followed the railway Didcot - Newbury – Andover – Boscombe – which kept me clear of the artillery ranges on Salisbury Plain.

By adding 25% to the stall speed, I chose an approach speed of 85 knts which worked nicely. The path of descent was not steep with a little power on. The touch down was easy but soon after landing she tried to swing right although head to wind, & tail wheel locked. This I corrected rather too heavily with left brake; it checked the swing but lifted the tail momentarily. It seems that the little solid tyre at the tail has no grip at the higher speeds, & the aircraft lacks directional stability after landing.

While waiting for J.C. to collect me, I note the rudder trim setting which I'd found correct for climb; the markings are rather confusing. Also that the flap travel was less than the full indicator scale.

Note ; This is the only single engine type I've flown that is fitted with an Auto-pilot.

Then pencilled note :- No. There was the Avenger (Tarpon)

A Halifax & two Stirlings

The prototype of the Mark III Halifax has been fitted with dropable tanks in the bomb bay. I took it from Radlett to Farnboro for the dropping tests.

It was warm, no wind & a slight haze. I opened up very slowly since there were men working either side of the runway at Radlett. We went off well & straight.

At Farnboro, I overshot – for the first time in a Halifax. I was foxed by the fact that the light wind was behind the beam on the approach, & I had only the tail turret.

Moreover, at about 1000 feet & I suddenly saw a Messerschmitt 410 coming head on at me! It was on test. So we went round again from about 800 feet.

My next approach was OK. I turned in at a lower level & gave her full flap, motoring all the way in at -6. Even this boost was too much, so I ordered the inners closed at about 800 feet & brought them up again to -6 at 400 feet.

Entering the aerodrome at the usual 115 m.p.h. we cut the motors before the hold off. Even so there was a long float, due to absence of headwind, no turrets & light fuel load. I held off to a good 3 point touchdown, then used full brake, knowing the brakes were weak from taxiing test at Radlett. This was a good landing but we used about 1500 yds of runway. Under such conditions, one could have used a final approach 10 mph below normal.

On the whole I was well satisfied, not having flown a Halifax for over a month.

The next day I had to test a Stirling IV at White Waltham for the first time, so I was very wary about using too much aerodrome. We have only just started bringing into W.W. – now that it is extended.

Conditions were almost ideal – a nice 15 mph N.E. wind on the long runway, & very little traffic after 6 o'clock. The grass was damp but not wet. No. 3 propeller had been snagged for feathering in flight; so I was relieved that it did not do it on take-off. All went well; we feathered it after unfeathering normally – it feathered by itself! So I unfeathered to 1300 rpm & then it ran away. She went up to 2900rpm with the throttle closed and in full coarse. F/E Laker quickly got it under control by lifting the pitch lever to full fine, & then taking it gradually down.

Our first approach was balked by a Hudson. In view of the propeller trouble, I did not go round again wheels down; I had them up.

Our next approach was at -6, and I entered the field as low as I dare, on the outers alone, at 110 mph (ten mph below normal; load 600 galls no turrets).

Below 500 feet, I had ordered Laker to wind the trimmer back for me since my hand was on the throttles. This worked out perfectly & we managed a touchdown which Laker said was the best he'd ever experienced! There was scarcely any need for brakes, but just for fun I ordered "10 lbs brakes Mr Laker" – which was a new one on him!

I pointed out that grass is always kinder to the tyres than concrete at the touchdown. On the test sheet, we called for a new C.S. unit and a thorough clean out of the oil system.

Next day but one, the Pool asked me to do a Stirling from Rochester to Swindon. I had F/E Seccombe since Laker was in Scotland. At my request he used intercom.

At Rochester there was no wind, so I took off down hill over the town facing N.E. Despite opening slowly she tried to swing right, (no wind = no rudder control), so I had to leave No. 1 throttle half open & go full bore on the others, bringing No. 1 up immediately afterwards. As a result, I had to lift her off before she was really ready and we cleared the hedge with very little to spare as regards height.

At Croydon it was very hazy, vis. not more than 2 miles at 1000 feet, but we ran into the clear at Reading.

At Swindon the runway is not long & there was almost no wind. So again I came in at 110 mph, on the outers only, trimmed well back. Result: an excellent touchdown.

Morals ; (1) Intercom is a great help.

(2) In flat calm one can approach 10 m.p.h. below normal at light load.

(3) It is a good trick to cut the inners back from -6 & to have the F/E wind trimmer back.

The EXPEDITER

20 May 44

Flew up to Speke in a Proctor beneath a 1500 foot cloud base in cold weather. Tried out my new triangular section time-distance scale, which worked very well & was most useful.

Brought Hatch & Knights back in the Expediter, a very nice 5 passenger all metal job, with two twin Wasp Juniors 450 h.p. each.

It turned out to be a most attractive aircraft with only two defects ; No forward view on the ground and more knobs & taps than a Mosquito.

It was fascinating to compare it with the Oxford & the Anson. She has more power, more speed, same endurance & about half the load of the Anson. Her performance was most satisfying; excellent climb, good stability Light controls. On one engine she is outstanding. She will hold height at A.T.A. cruise 28" 1800 rpm trimmed hands & feet off at 115 m.p.h.

The safety speed is only 90m.p.h. & the wheels come up quickly. On take-off (5 up) I cut 1 motor at 100 m.p.h. halfway across W. Waltham & flew round and landed without difficulty on the other.

She has a short take-off & landing run.

She lands like an Oxford – one must get the stick right back & the nose right up to do a 3 pointer. This steep ground attitude accounts for the short landing run.

She cruises at 170 m.p.h. using about 17 Imp galls per engine hour = 5 air miles per gallon. I was pleased with the electric undercart & flaps, which operate quickly even with either engine dead. The emergency is also simple & quick, a crank handle at the right.

Engine starting proved to be a bit tricky until we found that the throttles must be precisely 1" open at the knob. The propellers were counterweight, non feathering. Approach speed 80 mph power on or 90 power off.

Bob Morgan was also impressed by the machine & said my handling note was the most favourable of any American type, except perhaps the Fortress! Credit where credit is due.

She must be very clean aerodynamically, judging from the performance & the way she accelerates if the nose is put down.

This made 4 hours flying today – including the Stirling test described on the previous page.

The Stirling described 2 pages back was re-tested today – all O.K. We had with us the Chief Engineer & his two senior Engineers, all very interested in the flight & new drill.

Conditions were favourable; a clear evening with a light West wind. The “morals” given 2 pages back, were followed exactly & worked out perfectly. Laker said this, & the previous landing, were the best he’d ever had in a Stirling. We flew for 5 minutes or so with both stbd propellers feathered – which gave the C.E. a thrill.

SWORDFISH III

24.5.44

3 of our junior pilots were reported for taking off badly at Worthy Down. So to investigate, I had one brought to W.W. today. The conclusion formed was that they were overawed by the size of the aircraft, never having flown anything bigger than a Proctor.

Even with full throttle before releasing the brakes, the rudder control is adequate. But the extra equipment gives so much drag that I decided to recommend take-off power up to 1000 feet, and to cruise at zero boost (90kts) instead of -2 as on earlier Marks. It is years since I flew anything bigger than a Magister with an open cockpit. It was a hot day, so quite enjoyable. Astonishing to think that this ancient biplane is still in production, & that I’d not previously flown one.

The THUNDERBOLT II

27.5.44

Flew up to Speke in 1¼ hours by Fairchild, east of Birmingham. Just before take-off, the elevator trimmer came adrift in my hand! So we had to get another Fairchild.

Hatch showed me the knobs & taps & I took off after lunch. There was industrial smoke mixed with a low wispy sea fog giving ground visibility about 2000 yds. But under the cloud base at 1500 feet one could see across the river.

One novelty was the electric sliding hood. The cockpit is roomy & generally convenient. Ground handling much better than most Americans. She is much too heavy (12000 lbs), and the take-off run is long. But there was no difficulty in keeping straight; boost 46" without the turbo blower, which will give another 6".

After turning on course, the cabin was hot, so pulled the cabin ventilator knob & the cable broke! So I had a superheated ride & was compelled to open the hood an inch or two. Any larger opening seemed to suck in exhaust gas.

Until crossing the Cotswolds, cloud kept me down to 1200 feet, but visibility was good enough. I found she cruised at 180mph at 1800 & 28", 200 at max. cruise weak, and 230 at max. rich. Which is very slow for a modern 2000 horse single seat fighter. Slower than the first Spit I ever delivered! Slower than the Mustang.

But the controls were pleasant enough, & she trimmed nicely. Little trim changes as u/c & flaps worked, or power varied. Stalled her at 5000 feet over Moreton in Marsh 115 mph. with everything up, 100 wheels & flaps down.

Her max. climb was only 1500 f.p.m. But the astounding thing was the glide, just like a stone at 140; with wheels & flaps down, the path of descent equals a dive at 45° and 130 mph coming down 3½ thousand feet a minute. Admittedly, I had full tanks – 300 gallons. The 4 blade propeller must also have enormous drag.

Slow flying was OK at 150 mph – damn nearly equal to the normal cruise.

At W. Waltham there was no wind, blue sky & hot sun. I was sent round again 4 times, so I decided to carry on to Heston. After 1½ hours flying there was considerable oil on the windscreen and the overheated cockpit was wearing me down.

I had a moment when I thought the u/c would not come down. But it was only the lever caught in neutral. The indicator light is stupid; it shows red in transit, and is out with the wheels down or up!

The landing on 1200 yds of grass at Heston in 5 mph wind was easy enough. One had to watch the steep path of descent (and use power to reduce it) at 115 m.p.h. The landing run was about 800 yds using the brakes firmly so that the tail was trying to lift. Then the tail wheel lock stuck in, & I had to clear it to turn off the landing path.

The First YORK with Four HERCULES

2 June 44

Flew up with the C.O, Bob Morgan & J Campbell to Hawarden to see the start of our first freight movement – six ferry Dakotas over to Ireland.

Then to Ringway for the C.O. to get his first York I. They had a little trouble starting due to incorrect doping by the ground crew.

We collected the prototype Mk II and took off nicely against the strong wind. The throttles were very stiff but there was little need to “steer” with them opening up slowly and using the rudder freely. The visibility was good but the cloud base only 1200 feet; so I turned left at 1000 feet – and forgot to lift the flaps till Laker asked me.

I handed her over to Campbell as far as the Wrekin, & went down to the cabin to take a welcome cup of tea with Bob Morgan. The Hercules struck us as being quieter than the Merlin.

South of Droitwich we flew her with 1 stbd then both stbd feathered – and gained 1000 feet. To my surprise, the safety speed was no higher than the Mk I – 135 mph. but with two dead on one side, the rudder trimmer was not quite powerful enough. South of the Cotswolds, the ceiling & visibility were unlimited. So I took the opportunity to go up to 5000 ft to stall her. Lightly loaded 800 galls fuel, the flap up stall was nothing but stable sink at 90 mph. Flaps down, there was a shuddering at 80 mph but no tendency to drop a wing. Recovery was normal & quick.

Landing at Boscombe towards the West we were about 25° across a 30 mph wind. (My last York was slow on a very strong wind).

So I came in at 120 (instead of 110) using only $\frac{2}{3}$ flap. The approach started at – 6 boost. I then closed the inners to lose height; opened the outers up at about 300 feet & followed that with a short opening of the inners. Finally closing the outers when we holding off. This working of the motors in pairs overcame the snag of the stiff throttles; it was nearly impossible to work all four together & the weather too rough to let the F/E set them for me.

The touchdown was not bad but after running about 200 yards she began to pitch on the very rough surface.

We set off by Fairchild in bright sunshine but ran into industrial haze south of Ringway (1.5 hours) where we had lunch. A further 2.2 hours by way of Bolton, Preston St. Bees Head took us to Stranraer (Castle Kennedy). There were rainstorms near Barrow in Furness but good visibility & ceiling after Dumfries.

A car conveyed us some 12 miles to the Mess at Wig Bay standing about 400 feet up on the West side of Loch Ryan. We arrived about 6 pm in time, in time to unpack and have a drink before dinner. The three of us had a Nissen hut to ourselves & were quite comfortable - but it could be a grim exposed place in Winter. We were fortunate to borrow bicycles, since it was two miles from the Mess & the slipway – and we had to go up to the Mess for all meals.

Next morning (Sunday) we went on a test flight of a SUNDERLAND with F/C Mickel A.T.A. and had a glorious run up the coast & the Clyde past Ailsa Craig & the Isle of Arran as far as Greenock. Excellent view of the shipping and the flying boat base on the Clyde.

I flew it for about ½ hour and was much impressed by the excellent forward view, and the delightful flying characteristics of the aircraft. The controls were as light as a Stirling & the stability excellent. Going into a turn one needed a little rudder to prevent slight outward sideslip.

We cut the starboard outer, & then later both starboard motors and found that the swing was easily held at cruising power & speed. (- ½ 1900 rpm = 125 kts.). Mickel did an excellent power off landing; it was difficult to judge exactly when the keel kissed the water.

After lunch the Chief Test Pilot S/L Cleugh-Fair, did one circuit with us & then snagged the aircraft. His landing was heavier than Mickel's – I think he had lunched too well.

The C.O. then broke the news to us that since this was an M.U. not a School, he could only convert boat pilots to Sunderlands. He could not authorise me to go solo since I had not had the basic boat course. This was a disappointment but did not really matter since my present job would not allow me time to ferry boats, in any case.

On Monday we flew with F/Lt Pidgeon – a most charming & capable pilot, very keen on veteran cars & steam, so we got on well together. He made 1 circuit with a power on landing, then showed me a power off landing with full flap down. I did a couple of power on landings (& the take-offs) & unmoored as well as moored.

On Tuesday, the Station has its day off so we went for an all day sail in a Ketch rigged Whaler. We borrowed this double ended open boat from the Station Sailing Club, & had a fine sail.

Wednesday there was heavy rain all morning. In the afternoon we went with J.Pidgeon who launched and moored a Mariner I was most interested that he had three attempts to pick up the buoy.

Thursday was our best day. 1hr 20 in the morning doing circuits & bumps with W/O Polatch I made 2 landings power on, 2 power off (1 with full flap). Power on, we aimed to touch down 100 yds beyond a buoy, & power off we aimed to come to rest before the buoy.

I had a little difficulty controlling swing on take-off due to the light wind & the fact that W/O Polatch liked to see the throttles opened rather quickly. I picked up moorings twice at first attempt.

In the afternoon, we flew over to Killadeas on Loch Erne with F/Lt Pidgeon – in the N.W. of Ireland – a fine big fresh water loch about 150 ft above sea level. We brought back 4 barrels of draught Guinness & had a look at the Clogher valley narrow gauge railway & a horse Tram at Kinser (?). I did the landing at Wig Bay (2 hrs 20 mins).

On Friday, we flew a Catalina for the first time. Pidgeon did a circuit then I did one & we had to come in then for suspected lack of fuel.

The Catalina is a dreadful aeroplane compared with the Sunderland. There is no joy in flying it, although it has a good range & is reliable. The ailerons have a travel of 270° either way & are light but the effect of the rudder in turns is peculiar in the extreme. It is best to let George fly it. On the water the forward view is poor & lots of water dashes over the low windscreen. One starts the take-off with the stick held hard back until she is on her step. So the nose rides up very high at first.

To my surprise I was allowed to taxi it downwind on the step at about 45 knots.

On Saturday morning the weather was impossible – very low cloud & dense rain. But it cleared at midday so we started back in the Fairchild. The Met said we were in a warm sector which would give us $10/10$ at 600 – 1000 feet with patches of sea fog on our coastal route, plus a cold front south of Birmingham.

So we doubted whether we should get through. Actually we had 1000 feet & excellent visibility as far as Manchester. Passed over Coniston & thought about the Water Speed Record of 1939.

We left C. Kennedy at 3.03 & landed at W.W. at 7.13. this 4 hrs 10 mins is the longest single hop I've ever made I think. The wind was against us in the North & from S.W. in the Midlands. I handed over to Bob Morgan after $2\frac{1}{2}$ hours. The expected cold front was lying South of the Midlands but we just scraped over the Chilterns on the direct course with visibility about $2\frac{1}{2}$ miles.

General notes on Boats (Sunderland) There is more grease about than on landplanes so one must wear overalls, plus a raincoat to resist the spray when going out in the launch.

Unmooring After checking bilges, removing pitot cover etc, the rigger makes fast a short slip and casts off the mooring cables. Outer engines are then started, & the slip released. Inners are started while taxiing. Engines are run up in balanced pairs.

Taxying 1200 rpm gives about 12 knots & the heads do not get too hot. Long distances may be covered on the step at about 45 knots.

Take-off Warn crew on horn. Trim 2° nose up. Flaps $\frac{1}{3}$ down. Face straight into wind. Gills closed. Open outers first, with stick held back. Then open inners & concentrate on keeping wings level. Use ailerons and rudder fully. When she lifts on to the step ease the stick towards the neutral position. Unstick at about 80 kts like a landplane.

Climb Climbing power 105 knots, flaps up.

Cruise - $\frac{1}{2}$ & 1900 gave about 125 kts.

Landing Warn crew on horn. Reduce to 115 kts 2200 rpm. Start flaps down before final turn in. Stop flaps at $\frac{2}{3}$. Set outers to – 4. Approach at 100 kts easing down to 85 knots. Use the inners to give 200 feet per minute descent.

The astonishing thing is that this produces a sweet touchdown with very little judgement of height required. I can quite believe that one can land thus on the instruments without looking at the water.

If the landing is made power off, the preliminary approach is very steep but the touchdown is easy enough. One must touch down in a level attitude (as for cruising flight); no attempt is made to land tail down. The aircraft runs on her step as the throttles are closed, about 800 yds, then slows up rapidly as she sinks in. Outer throttles may be opened to about rated boost to stop the nose coming too high up.


Much to my surprise, I can truthfully say that all my landings on Sunderland & Catalina were real “greasers”. It seems to me that, owing to the immense space available, the judgement required is much lower

than on 4 engined landplanes. Of course, I was flying at average load under favourable water conditions. More experience would be required to assess how rough the water can be for safe landing & take-off. We had little or no swell with waves about a foot to 2 feet high and winds of 15 mph or less.

The crew said to F/E Laker that my handling of the boat was better than any A.T.A. pilot they'd had before! Which was staggering, since they had all previous boat experience, & I had none.

Mooring up I was lucky to get the buoy at the first attempt each time. The essential thing is a long straight approach dead into wind, with inners stopped, outers ticking over equally at minimum speed (400 rpm), flaps fully down, & both drogues out if the wind is light. One aims to touch the buoy on the port bow. The outers are stopped when the short slip is secure.

In the final approach to the buoy one must steer with the rudder & full opposite aileron; if either throttle is opened the speed will be too great. If the idling speed is too high (eg. Catalina) the engines can be "blipped" on the ignition switches.

After stopping, propellers are trimmed thus  to give max clearance for launches to pass underneath.

Incidentally, on beaching trolley, they tow Sunderlands along the main road, & double deck buses pass under the wing.

A most instructive week's experience, but we could have done with twice as much flying & half as much sitting around.

The BUCKINGHAM is improved

11 July 44

As will be seen from my notes of 15 March, she was not pleasant to fly. Apparently, the R.A.F. refused to accept the first production jobs – being so unstable. So we did not ferry them. The modified version with larger tail areas & rudders was available today, so I was interested to see what improvements had been made. The ailerons are no longer "spring tab". The elevator balance weight is out & the spring tab has a much stronger spring to reduce its spongy feel. The elevator trim is lower geared.

The biggest improvement is on the take-off. With flaps up, there is little swing even if the engines are opened quickly. And the rudders work.

The safety speed is 170 if port engine fails, rather less on the starboard.

In cruising flight, one feels much more normal especially in turns. She is still not stable in roll & in direction, but is almost stable in pitch. The rudder is very light, the elevator is light, the ailerons are heavy – but Unwins says they will be brought into harmony. Once a turn is established, there is a feeling that it might tighten up on you; Unwins says it doesn't. In fact, once in the turn there is no need to maintain any backward load on the stick.

At 1900 & zero, she can be trimmed straight & level at 220 m.p.h.

Engine failure at any power above 170 mph is easily held by the light rudder & firm aileron - she can be trimmed to fly or climb on one engine. I did two landings in a light crosswind - I did not quite get the elevators back, so made slightly wheely touch downs & bounced gently. But she lost speed nicely & needed only 40 lbs of brake during the last half of the run. She kept straight nicely too.

So now the Buckingham is attractive to fly instead of something to avoid. And again I was impressed with Centaurus engines.

There follow two personal notes, the first undated and the second dated 1st July 44.

Note: Since writing the above, I've phoned Mama & Dada to ask them again to come out here to avoid the flying bombs. But they won't make up their minds to leave the place. Last night was the first for 26 nights they were able to sleep without interruption.

One has just landed on Dulwich College & another in the Park Cricket Field.

God damn the Huns to Hell.

4 OAKS AVENUE

1st July 44

This day the Council requisitioned our home to accommodate the bombed out. I consulted Mr Bracewell who said he would "guarantee to get it back for us after the war" A requisition does not a statutory letting. On his advice we went to see Mr Jasper, the Rehousing Officer who said he had to have the house but would assist us to recover it post war.

WARWICK with CENTAURUS

A brilliantly clear & sunny day with an unusually high wind – fortunately S.W., dead in line with the Vickers grass runway at Ripley about 3000 yards long. This dispersal field I had not seen before.

With Hatch & Campbell aboard, we did our Handling Trials. The excellent motors gave lots of urge about 2200 h.p. each. The trimmers are now more powerful & she flies comfortably with 1 propeller feathered. The stall flaps up & down was at a very low speed & very gentle.

The only difficulty was to assess the recommended approach speed under the prevailing high wind conditions.

Mr Luck, the Test Pilot, was unable to tell us much more about the engines because he had flown them only a little; the maker's representative always started them for him so he did not know amount to dope etc.

STIRLING IV with Aileron Trimmer

10.7.44

Belfast had delivered this to W. Waltham for us to try. With 2 stbd propellers feathered it proved capable of flying almost hands & feet off – just not quite stable in pitch. Only ¼ of the aileron trimmer was required; this turned the control wheel over 80°.

The C.T.O. made the circuit & preliminary approach. I entered the field rather low for a short touch down & closed the motors quickly; when I brought the stick right back there was no elevator control available; she sat down on the main wheels & bounced once. Analysing this, I think it was due to my taking over from C.T.O. below 500 feet & having not enough time to get everything set. As a result, instead of 110 m.p.h. over the hedge C.T.O. says I had only 100 – which is too slow with little power on, even lightly loaded – about 400 gallons.

Two Halifax III to Yorkshire

12 & 13 July 44

With F/E Laker, we ferried from Leavesden to Pocklington – an hour's pleasant flying in good weather after we'd crossed the Chilterns under low cloud. On take-off, I had a slight crosswind & did not "lead" quite enough with the starboard throttle; so we unstuck on the right side of the runway – but still on it.

The landing was very satisfactory since the brakes were not very powerful, I took special care to touch down short. We had -6 on the approach, closed the inners momentarily from 800 to about 400 feet. Entering the field trimmed tail heavy, I pulled all four back a bit, and got the nose well up before saying "Close". As a result she touched down lightly, fully stalled, & slightly tail first which is very unusual on a 4 engined type. With some brake, she stopped just over half way down the runway.

Sherburn collected us after lunch, & gave us a Beaufort II to ferry back to W. Waltham. I'd not previously flown this Mark, which has twin Wasp engines. It had dual, so I was able to let Laker cruise it South, past Doncaster, Nottingham. Leicester & Northampton. The ailerons were very stiff.

I was just about to have a look at a Fortress which crashed in cloud near Penn this morning, when Laker noticed both fuel pressure warning lights were flickering. There were no remedies we could apply, except to increase R.P.M. to 2400 (which put them out) & to hold our height of 3000 feet as we made for W. Waltham. There I made an approach power off in case either engine packed up. We hit a bump as we touched down, & it felt hard because the oleos were pumped up too high.

Next day I was asked to do another Halifax with F/E Lees in even better weather to Drifffield, near Scarborough.

On this take-off, I had put my palm behind the throttles so as to get more lead on the starboard. I did not exceed +2 until we had gathered a good speed. This gave a beautiful straight take-off.

En-route we feathered No. 4 for practice. At Drifffield there was no wind, so my normal approach was a bit too high and we had all throttles closed from 300 feet. 120 mph with [S.U. ?](#) was just enough speed for a power off descent & hold off. But owing to the big change of attitude before the touchdown, I was not quite level laterally; port wheel touched just before the starboard & caused a slight swing which needed a touch of brake to correct, the rudder alone not being quick enough.

Again Sherburn collected us after lunch & gave me an Oxford to W. Waltham. I had 4 passengers including James Mollison. I gave his engineer & mine a bit of dual on the way back, which took little more than an hour. I used - ¼ in Rich because with that load she was wallowing badly at - 1 in Weak.

No Green Light on Wellington

15.7.44

Testing our Mk I Wimpey Ambulance at W.W. we could get no port green light on lowering the u/c. Changed over bulbs, used Reserve & Emergency without success. But I felt sure the wheel was locked down since I could see the wheel, & the hand pump was solid. (horn did not blow, throttled back). So I shot the place up to warn the ambulance, warned J Campbell & Hatch to brace themselves & came in, touching down lightly while James maintained hand pump pressure. All went well, but I did not use the brakes in case. After she'd come to rest, we hopped out & looked at the leg before venturing to raise the flaps.

It was only a defective microswitch, but it was a topical experience because we've been working for weeks on suitable advice to give pilots on all types if the green lights do not come on.

Three New Marks in Four Days

22 – 26 Aug 44

HALIFAX II This has Hercules 100 with the new RAE injector carburettors working at 27 lbs of fuel pressure. Laker, Hatch & I delivered the first two to Boscombe Down in perfect weather – unlimited ceiling & visibility.

The initial movement of the throttles is stiff, and the booster pumps are only useful for starting. We found that switching them ON in flight brought the fuel pressure warning lights ON! Since each engine gives an extra 100 h.p. there is slightly more tendency to swing on take-off. We kept quite straight by putting my palm behind the throttles so as to “lead” with the starboard outer giving about 4 lbs more boost than the port outer. And we opened slowly not exceeding +2 until one third of the way down the runway.

Both landings at Boscombe were good considering that we were 60° across a light wind. The first I did not close the throttles myself, since I’d not trimmed her tail heavy. Laker gave me the boost I needed, & we had a trifle more speed & less power than usual – 120 mph. The second landing, I trimmed fully back & was able to work the throttles myself. But after the touchdown, we found the oleos were too hard for the rough surface, & she pitched about until speed had fallen to about 40 m.p.h.

SPITFIRE 21

25.8.44

It was a great pleasure to meet Alex Henshaw again & to get his advice on this, the last & the heaviest of the Spitfires (8,800 lbs).

He suggested a final approach at 105 i.e. 5 mph faster than the Mk XIV but agreed that the stalling speed was the same. But it seemed to me to give too much float. I used about $\frac{3}{4}$ of the 1400 yard runway which was 60° to a 10 – 15 mph wind. Since she stalls at 77 mph I shall recommend 100 for A.T.A. purposes. This is an adequate margin; It is necessary to touch down short for the extra weight gives a long landing run & the brakes are only just able to cope with their work.

My crosswind take-off was easy enough. I opened up to zero before releasing brakes, & thus did not exceed +4 until $\frac{1}{2}$ way down the run. Then +9 was easily controlled.

She climbed 2000 f.p.m at +4 2400 & cruised at 240 at 1800 & zero. +6 & 2400 gave 300 mph. at which speed she delightful to handle.

I do not know any aeroplane in which it is possible to do accurate steep turns with so little effort. The long nose & delightful ailerons help.

I did my stalls at 6000 feet over Harwell. Then slow flying back at 120 mph flaps down. Coolant temperature rose to 115° so I shall recommend 140 m.p.h. Mislanding was normal.

Dakota IV

26.8.44

Similar to the III except 2 speed blowers & minor mechanical differences.

I flew a couple of circuits at White Waltham with F/O Hatch acting as F/Engineer for the first time. He did very well, but of course lacks the deftness of Laker’s long experience.

It is a very attractive big twin, very comfortable for the pilot. Only two snags; the brakes snatch at low speeds, & the dashboard instruments are confusing. I do not like a roof without Perspex in turns.

We enter Paris!

24.8.44

This great news has caused a noticeable increase in optimistic atmosphere. Most people seem convinced that the war with Germany will be over in a couple of months – especially now that Rumania & Bulgaria are out.

I hope we shall quickly capture the flying bomb sites, before more of London is wrecked. What a mercy the Huns had not this device in use from 1940 onwards.

29.30.31 Aug 44

Three Undercarriage Tests in Three Days

Two Mustangs were on their last flight to be broken up. Our pilots could not keep their wheels up, so I had to sort out the snag. Both were early Mk I with a very poor design of u/c lever – abandoned on later Marks. I found that the lever would stay up only if its lug was carefully inserted into the worm notch. I passed them both fit for a single flight, if the pilots were warned.

As it turned out, one of the pilots had great difficulty in moving the lever out of the UP position.

The Mustang is undoubtedly the nicest American single seater but I need a cushion behind me to reach the rudder pedals; and the original hood design is not good.

Next day I had to fly another old veteran – a DEFIANT, on which the emergency had been used to get the wheels down. It was interesting to handle one after an interval of four years. It was very pleasant & easy. Only one leg went up at the first attempt and the throttle slipped back to -4: there being no throttle friction. After that she did two retractions & lowerings ok.

Remote Controlled Autopilot

1 Sept 44

The C.O. had the idea of providing the navigator with a complete blind flying panel plus 3 knobs remotely controlling the autopilot. In this way the navigator can directly control the flight.

The equipment had been neatly installed in the main cabin of a Hudson.

I tested it with F/O Hatch in pleasant weather. With the auto pilot engaged, it was an odd experience to sit, arms folded, while the man in the back changed course and made shallow dives & climbs.

We managed a neat tail down landing, trimmed fully back. But on my second flight next day it was a wheely touchdown because I had too much cushion behind me & could not get the stick fully back. Even so, against a decent wind on the long run, no brake was required & we had to use power to complete the landing run.

OVER TO FRANCE

23 Sept 44

I was lucky enough to have beautiful weather for my first foreign flight. N.W. wind about 20 mph with ⁵/₁₀ cloud at 5000 feet.

The Anson was loaded with 1,400 lbs of supplies to go to B6 – a landing strip near Caen. F/Cap Clarke & I marked up our maps with the cross channel corridors etc., collected our Mae Wests & K type dinghies & were airborne at 11.30.

After checking the compass on our local railways we climbed to 6,500 ft crossed the coast at Selsey Bill. We saw several ships during the half hour crossing. I allowed 5° shift & was delighted to hit the lighthouse at Cape Barfleur dead on the nose & dead on time.

We lost height to 1000 feet at our turning point Carentan and had a good look at the historic spots – St. Mère l'Eglise, Cherbourg (on the beam) Bayeux & Caen. Some villages were untouched; others were devastated. Bayeux Cathedral looked ok & had a great red cross on the roof.

Caen cathedral also appeared unharmed, thanks to very accurate bombing, which had destroyed half the town, and completely obliterated the quarter adjacent to the River Orne. One could not even distinguish where the roads had been, never mind the houses. The bomb craters were a continuous interlocking mass.

The only traffic on the roads were military. We saw only 3 trains, all on the Cherbourg – Paris main line, all hospital trains moving very slowly. We noticed several field hospitals under canvas.

Our landing strip was 60° across wind but 1500 yds long. It had been made by driving bulldozers across two or three fields. There were no buildings, just a few tents. We were quickly unloaded & given a return load of 1000 lbs of empty blood boxes for Down Ampney. But no one could tell us exactly where Down Ampney was.

We were offered some white bread & cheese – which gave me indigestion coming back. The troops were most grateful for daily newspapers; they did not lack food or cigarettes. I was offered petrol but did not need it. We remarked how much greener the fields were in Normandy.

We landed at 13.05 & left at 14.05. 1 hr 35 going out (including sightseeing). We came back in 1 hr 15, wind slightly against us, but a more direct route; true North from Bayeux to W.Waltham.

This route gave no opportunity to check drift over the land before crossing the sea. We were 40 minutes crossing & were about 4 miles East of Selsey bill. A Typhoon investigated us at high speed & provided the only fright of the trip.

Arriving at W.W. at 15.20, we got a pinpoint for our destination near Swindon.

A most enjoyable day's work, thanks to a good old Anson (which cruised at 140 m.p.h.).

Two Warwick Tests

24 Sept 1944

Next day there was a 40 m.p.h. N.W. gale. I tested two Argus and a Rapide and 2 Warwicks. The first Warwick was a passenger version with 2000 h.p. Double Wasps, one of which had been cutting in auto lean. The mechanics had found nothing wrong & I could not reproduce the trouble on the ground. I took it off (flaps up) & all went well. The landing was difficult in the very rough air. I came in at 95 m.p.h. with 40° flap & intended a wheeler; held off a little too high & cut throttles a fraction too soon.

The next Warwick had Centaurus which give a lot more urge. Repairs had been done to starboard tyre & certain engine pipes broken when the tyre had burst while parked

This time I came in a trifle faster, 90 kts & kept power on till the nose was up. The touchdown was good, but she pitched a bit over the bumps while decelerating. And I forgot to call in full flap after landing. Under the conditions I was quite satisfied.

We examine a JET

5 Oct 44

A signal from 41 group authorised us to deliver a Meteor. Naturally I was delighted at the prospect, And C.T.O. & I went post haste to the factory. Here the security precautions were the most massive I've ever encountered. Armed guards & policemen everywhere. Despite our signal, it was four hours before they satisfied themselves as to our duty to be there.

Then one of the test pilots showed us the machine – a very pretty twin jet single seater.

The motors idle at 5000 r.p.m. & give 17,100 on take-off. One must take 10 seconds opening the throttles. The throttles, fuel cocks & starter buttons & booster pumps are the only engine controls. There are no gills, oil coolers, carb intakes, mixture levers, ignition switches or propeller controls or supercharger levers.

One has to watch jet tube temperatures and to check burner pressure.

The machine to be ferried was not available after all, so we must wait until another is ready for our handling trials.

SEAFIRE XV

7 October 44

The first Seafire to have a Griffon engine. It is a Mk XII fuselage with Seafire III folding wings. I flew it for half an hour under a 1500 ft ceiling at Yeovil. The most impressive feature is the climb – about 4,500 feet a minute at climbing power. But she is not quite as sweet on the controls as the larger Mk XXI.

The rudder control is sensitive to variation in engine power, and the rudder trimmer must be moved gently.

I made a run over the aerodrome at 300 knots (345 m.p.h.) then cruised at 0 & 1800 which gave 200 knots (230 mph)

After touchdown, I followed Henshaw's advice & used the brake firmly at highish speed. With the stick held back, she does not nose over – as she would under harsh braking at walking speed (without elevator effective). Since the grass was wet, & the wheels might be locking, I "blipped" the brake lever and below 30 mph held a steady brake while wagging the rudder.

The torque on opening up to take off forces the right wing down. I shall recommend our blokes not to exceed +9 and 2750 at the gate. Full throttle gives +15 and 2750, which is not required & would easily start a swing.

I liked the interconnected pitch & throttle control – a most useful idea on a fighter.

MUSTANG IV

8.Oct 44

This is a much improved version of the Mk III with Packard Merlins, six ½" guns & tear drop hood. I thoroughly enjoyed my trials of it at W.Waltham under 1500 foot ceiling with visibility about 4 miles.

The new hood gives an excellent view – equal to the Tempest; and the ground handling qualities are as good – better than the Spit's narrow u/c & more heaviness.

One can taxi for miles without use of the brakes (tail wheel steers with stick aft of neutral) and without overheating the coolant.

The cockpit is neat & comfortable and I like the multi position flap control. But there is no reserve hand pump & the only u/c indicator is a red light in transit or if throttle is closed wheels up. Flying controls very light.

This particular machine was as sweet as only a Merlin can be. The Stromberg carburation was perfect throughout the range – from idling to 61" boost. The exhaust was clean & each cylinder was firing evenly & equally at all powers.

She cruised at 220 mph (1900 & zero) & I made a brief run at 280 mph (2600 & 40"). To do stalls, I managed to find a hole in the clouds which gave me 3,500 feet. 105 clean 96 dirty. So I fixed an approach speed of 110 – which is 10 higher than earlier Marks, due to a different A.S.I. system.

This lovely aeroplane is by far the best American single seater, equal to any Spitfire with Merlin, and better in some aspects.

Bad Weather for the King of Egypt's Special

26.27 Nov 44

This was the first Anson with constant speed propellers – the Mark XII. It was Priority 1 & V.I.P. to go to Melton Mowbrey. On Friday the weather in the North was so bad that we did not start off for Yeadon.

On Saturday it was lovely in the South but we only got as far as Ratcliffe. Low cloud & rain stopped us. After lunch, it was too late to do the job so we tried to get back, but after 3 mins had to return to Ratcliffe. At 3.30 we started off again, the Met promising that good weather still remained South of Cranfield.

I flew & F/Cap Shaw read the map as we flew flaps down at 80 m.p.h. at 600 feet in visibility of 1000 yds to Market Harborough. We were then forced down on the railway, since we could not get over the low hills. The situation was now very tense; about 200 feet above the railway & visibility about 800 yds and drizzle. It was so dark that the railway signal lights were very bright. The only reason we went on was that we had been promised good weather in the South – and it had been good when we came up. But the bad weather was moving South; I was fully occupied following the railway. Shaw had to read the map for me. At Northampton it was very bad. At Bletchley we turned West on the line to Bicester, finally getting into the clear at Princes Risborough.

I resolved in future to pay more respect to the A.T.A. weather minima, & to be even more disbelieving of the Met ideas.

On Sunday at 10 am we set off again – Shaw flying the Anson in calm clear weather. North of Nottingham we were at 2000 feet with all the towns lying under a pool of thick haze, with the snow covered Pennines on our left sticking up through it.

Leeds was invisible under fog, but Shaw caught a dim sight of Yeadon aerodrome on its hill below, & went down for it. Then followed a colossal piece of flying; he made at least seven circuits & passes at the aerodrome. We could not see more than $\frac{1}{3}$ of the viz across it – about 400 yds. Finally he got her down on the runway, and we managed to stop before the end loomed up.

After that it snowed, so we had no choice but to spend the night there – at the Parkway Hotel. Collected a lot of gen. Next morning, Yeadon was above the fog but we could not get away before the fog began to rise; there was 2 hours delay getting the wings of the Mk XII de-iced, oleos blown up & battery charged.

We flew it locally for 15 mins, feathered the starboard, checked safety speed etc. There was very little flying difference from the early Marks. But the cockpit controls were very messy.

We then set off south; I followed Shaw in the taxi while I tried various cruising powers etc. This was unwise; for at Nottingham he circled down into the mist, and I thought he'd decided to go no further over the thickening haze & industrial smoke. Catching sight of Newton aerodrome, I decide to land & get actual weather reports to the South, I narrowly missed an Oxford coming in on the beam. The solid roof of the Mk XII is very bad when making a tightish turn. It was a grass field and u/s after the recent rains. Phoning Melton, I found Shaw had got through, that it was 1800 yds there, and that Newton was about the thickest spot on the route, getting all the Nottingham smoke. They had even stopped flying on the beam. Visibility was about 800 to 1000 yds & I did not want another experience like Saturday. Eventually I decided to have a try, but not until I had worked out a 12 minute route along a railway with 3 check points on the quarter inch map! And cleaned my windscreen & opened the direct vision panel.

When I taxied out, I got slightly fogged; took off on 240° unable to see the other side of the aerodrome, with 20° flap. At 80 mph I pulled the power back – then at 500 feet found the conditions quite easy. The sun was shining through high cloud and it was not difficult to follow the railway.

The landing at Melton was at least twice as easy as at Newton. We flew home on a compass course due South at 2000 feet above the haze, just able to recognise the principal checkpoints.

Never had I done so much bad weather flying with a new type. I wonder whether it was worth it.

The INVADER from Cornwall

18 Dec 44

Good visibility with $\frac{8}{10}$ at 2,500 & heavy rainstorms in the West. Three hours by Fairchild against the wind to do the 200 miles to St. Mawgan near Newquay (including 20 mins stop at Exeter to spend a penny) We ate our sandwiches as we scraped over the top of Dartmoor at 2000 ft. Incidentally I'd not realised there was so much high ground in Dorset, N.E. of Exeter. I think it is 5 years since I was last along the South West of Cornwall.

The Invader is a more powerful successor to the Boston. It has the big 2000 h.p. Double Wasps & a gun loaders seat beside the pilot's. The only advance information we had gave no flying details, so I was glad to take a brief look at the Americans pilots notes in the aircraft.

Collecting from the American Army there is much more paperwork than normal. I had to wait while a route forecast was written out by the Met Office before they would "release" the flight. They thought it very odd that I was not going to use the radio, & had no navigation. F/Cap Hatch acted as my Flight Engineer. So although we arrived there at 1.15 it was 3 o'clock before we took off. The cockpit is generally convenient, with central control pedestal, but is as complex as usual on an American type. The windscreen is too far away; so are the rudder pedals.

We started the port motor without much difficulty, with the stbd we made the mistake of trying to dope electrically while the booster pump was off.

Quite easy to taxi but the view is rather restricted. On take-off, the book said "set T.O. boost 51" before releasing the brakes". I thought this likely to start a swing, so compromised at 40". Despite a 15 mph wind at 90° it was very easy to keep straight, & I opened up rapidly to 51". She quickly accelerated and I lifted her off at 110. The wheels were up before we reached the end of the long runway. Climbing at 170, we lifted the flaps.

Cruising at 30" & 2000 rpm we had about 230 mph. to avoid rainstorms, I flew North up the coast for 20 miles then turned East for Exeter thus avoiding the low cloud on Dartmoor.

The flying characteristics were light & the aircraft responsive. I did no handling trials because we are not going to write a book about it. The Invader was the first of two by the British for test purposes. A quantity order may follow.

Since Boscombe Down was waterlogged & u/s I took it into Farnborough – 1 hour from Newquay. We had good vis but only a light South wind on the short wet runway. I managed a good short touchdown; final approach 115 mph. The nose wheel came down quickly & I needed to use the brakes firmly; it is not easy to apply them equally & the nose is inclined to twitch from side to side. She stopped in about 1000 yds.

On the approach, it seemed easier to maintain a definite airspeed than on the Mosquito, which is relatively unstable with everything down. But the Mosquito top speed is higher (although A.T.A. cruise is the same) and the Mosquito cockpit is much simpler.

The Invader, like all Douglas aircraft, is a sound job & very pleasant to fly ; I think it is the nicest tricycle so far.

P.S. In flight, we noticed 75 amp charge from port generator; switched it off and stbd went up to 25 amps for a while. Suspect regulator since both battery volts equal.

The LINCOLN

22.12.44


While I was doing the Invader on Monday, Shaw & Laker brought this down for me from Woodford and transited it at Aldermaston. Since then the weather has been continuous fog but it cleared somewhat today.

I was anxious to deliver it to Farnborough, not only because it is the 2nd Prototype, but also Laker & I did not want it to interrupt our Christmas 4 day leave, starting on the 23rd.

It was obvious that the weather could prevent us doing stalls, 3 engine trials etc. So I decided just to deliver it, if we could. The Met indicated no sudden change in the weather, so we flew round the route in an Anson just after lunch and found that we had 2000 yds to 3000 yds and 800 ft all the way, so we landed at Aldermaston to collect the Lincoln.

It has 18 feet more spar than the Lancaster on which it is based, 2 speed, 2 stage Merlins & other mechanical differences. The engines had a strong tendency to build up if running at less than 1200 rpm due to over richness. Before take-off, I told Laker we should leave the flaps down and 2600 rpm in order to cruise slowly. The weather did not seem to be getting worse so we took off with a 10 mph wind at 60° on the right (the favourable side); it was easy to keep straight without "throttle steering".

We quickly had to shut down to climbing power & then to zero boost. The cockpit windows misted over, so we had to open a side window to clear the condensation. It was immediately clear to me that the weather was worse than an hour before. I decided to fly East for 6 minutes as planned, to pick up the Reading – Farnborough railway, on the grounds that it would be no more difficult to land at Farnborough than to return to Aldermaston.

Then our troubles began ; my stop watch stopped; the artificial horizon failed so Laker changed to the other pump. Then South of Reading we ran into rain & cloud forced us down to an indicated 400 feet – probably 250 actual. Just as I decided to turn back & started a left turn I saw the railway; so continued the turn thus  to follow the line. In the turn our speed went down from 140 to 120. All this time I was calling for boost from -4 to zero to regulate the height.

I saw the gasworks near Sandhurst & whistled into Farnboro town at 400 ft, turned S.W. for the airfield in vis not more than 1000 yds. We went just past the watch office & saw the Tee was now reversed landing N.E on the long runway.

I should add that the air compressor had failed at Reading & our bottle pressure had dropped to 140 from 200. So I was worried that the brakes might not work. So I was delighted that the long runway was in use, and that the weather at the approach end was not so bad as over the town.

Therefore, without doing a full circuit, I immediately called for "wheels down". Laker knew that our starboard hydraulic pump had failed together with the starboard generator, but decided not to tell me since I had enough on my plate. The u/c went down on the accumulator & the port pump & he reported "wheels locked down" just as I started my last turn in at 400 feet, 130 mph & +4 boost; so I gave it full flap then almost immediately gave it - 4.

Owing to low brake pressure, I intended to land short and slow; crossed the hedge at just under 105, throttling back a bit.

To my great pleasure, it was a lovely touchdown and she slowed up rapidly; we stopped in about ½ the run without using the brakes. This was about the same distance as the Invader with the brakes under similar wind conditions.

We taxied away on the inners alone to see if they would tend to overheat; they stayed at 80°C.

I attribute the good touchdown to leaving a little power on until the nose was well up, Then calling “close”. This is important on all British 4 engine jobs. In this case I did not have her trimmed tail heavy; the elevator + the power got the tail down nicely. With friction loose, the throttles were very sweet.

Laker guessed that the reason for all our mechanical troubles in flight, were that the accessory gearbox drive on No. 3 engine had sheared; probably lack of oil in the box. We snagged it.

While I was pleased (and so was Laker) with our good landing in the worst conditions I’ve ever flown 4 engines (and my first landing on the type) I was very annoyed at the weather catching me out like that. I would not have attempted the flight, except that it was over familiar country & we had just examined the weather en route in the Anson. In future, I must not work to such narrow margins; the slightest deterioration makes it dangerous.

The Lincoln seems even easier to fly than the Lancaster, but having more span it does not respond quickly to the ailerons. The nose structure is higher which reduces the forward view on the ground.

It is the first new type I’ve delivered flaps down all the way!

PS Shaw followed us in with the Anson, but we had to leave it there & get a car back, as the weather closed down.

Letter from the Prime Minister (In pencil) Winston Churchill

I was quite taken aback to receive an envelope marked “Prime Minister” dated 12.12.44 containing a letter dated 9.12.44 informing me that the P.M. intended to submit my name to the King, on the occasion of the New Years Honours, to be appointed an officer of the Order of the British Empire.

The P.M. wished to be assured that “this mark of His Majesty’s favour would be agreeable to me”

I felt extremely flattered & reflected how pleased Gladys & my Mother & Father would be. My second reaction was that my chief Bob Morgan was surely entitled to be considered before me.

An immediate answer was requested, so I sent a simple letter of thanks.

O.B.E.

3 Jan 45

My name appeared in the second part of the Honours List published today. It appeared in the “Times” & Dly Sketch” Subsequently in the Worlds Press News, Ad. Weekly, “Flight” the Garage & Motor Agent & with photo “The Motor”.

As a result, there came a rain of kind congratulations from old friends & new.

Father & Mother were so delighted they sent a cheque for £100 and an equal generous sum to Del. So I put the ribbon up, with great pleasure.

Landed in Snowstorm

Coming back from Farnborough with colleagues Hatch & [Sutchard](#), we ran into light snow at Wokingham which reduced vis to 1000 yds at 400 feet. I decide to continue being in a Fairchild, only five minutes from home & over familiar flat ground. Just as we picked up the Reading main line at Forty Acres, the snow got very bad indeed. I clung to the railway at 200 feet until we saw White Waltham perimeter track, round which we went to the South side. I did a quick circuit inside the aerodrome but could not see the control van. Then the van fired Verey lights, so I put down quickly. The last turn over the perimeter track was low through about 60° to face the strong wind from N.E. Not seeing the windsock I had to assess this wind direction by our drift. It was a good touch down & a very short run : visibility only 300 yards, so we could not then see the hangars. Local knowledge made it possible; but it was a shaky do.

CENTAURUS TEMPEST

17.1.45

I was so impressed by the Mk V with Sabre, that I was very keen to handle the new Mk II – the first British front line fighter to have a radial air cooled engine since the days of the pre-war Gladiator. Official reports show it faster even than the Sabre. Fortunately the weather was excellent: good visibility a light N.W. wind and $\frac{7}{10}$ at 3000 feet.

Capt. Broad showed me the knobs & taps & said she flew almost exactly the same as the Sabre. I had the wind 30° on the worst side (stbd) for take-off but had no difficulty using only climbing boost.

The interconnected throttle & propeller control was a great convenience. Even with pitch lever fully forward one does not exceed 2400 rpm until the boost is over +6.

I did a run past White Waltham at 800 feet, 400 mph & max cruise rich. Then zoomed up about 5000 ft per min through a hole in the clouds & levelled off at 7000 ft for the stalling trials. 95 clean & 75 dirty. Little warning ; left wing dropped but recovery was quick & easy.

The A.T.A. cruise ; at 0 boost the revs are 1600 & the A.S.I. 295 m.p.h.

The controls are delightfully light & positive at all speeds, but I was particularly struck by her stability when trimmed for slow flying at 150 mph with 25° flap, -- 6 to – 4 boost 160 rpm (Auto)

My first landing was ok & used surprisingly little aerodrome. On doing another quick circuit, I undershot somewhat to try the effect of power on. About – 4 to – 2 was used & needed considerable left rudder at the approach speed. At touch down, the sun was in my eyes, & she touched lightly before I got the stick right back, which is essential for a three pointer.

I had made a deliberate mislanding at W. Waltham. +6 boost was enough but the flaps are so big that she does not exceed 140 mph until everything is tucked up.

Capt. Broad had asked me to notice a slight tendency to drop the stbd wing on landing: this did not happen to me. But then my assistant Capt. Shaw was subsequently doing his second landing, it did happen before the stall, probably as the throttle was closed & the torque came off.

It is many months since I had such an enjoyable flight. I like the Centaurus even more than the Sabre because it is easy to start, the colossal power (2,400 hp) is developed effortlessly due to the low r.p.m., it does not throw oil out, and it is at least as reliable as the Sabre.

The BUCKMASTER

2.2.45

Yesterday's gale blew itself out and today there was only the lightest of S.W. wind. $\frac{3}{4}$ hour each way to Filton in our Ranger Fairchild averaging just on 100 mph. I gave Tom Hatch some dual & navigation.

Bristol smoke lay over Filton up to about 800 feet, then 20 miles visibility up to $\frac{10}{10}$ at 4000 feet.

Unwins & Pegg showed us the Buckmaster which is a side-by-side dual version of the Buckingham with two Centaurus engines. Very good view & the engines are the only good features of this cumbersome aerial battleship. The ailerons have so much friction, even on the ground, as to be almost beyond the strength of one arm to move them. But they say this will be improved in production. We flew the prototype, which had no static vent, so we came in at 100 mph to equal 110 with S.V. This was just fast enough in the light wind; we touched down slightly tail first after a good heave back on the stick; with continuous moderate braking she ran about 1000 yds.

The take-off was not difficult – there is an electrically operated tail wheel lock. She cruised at 210 – 220 mph on 1900 & zero boost.

But the stiff ailerons removed any joy in flying. We checked safety speed 170 mph & single engine flying & slow flying.

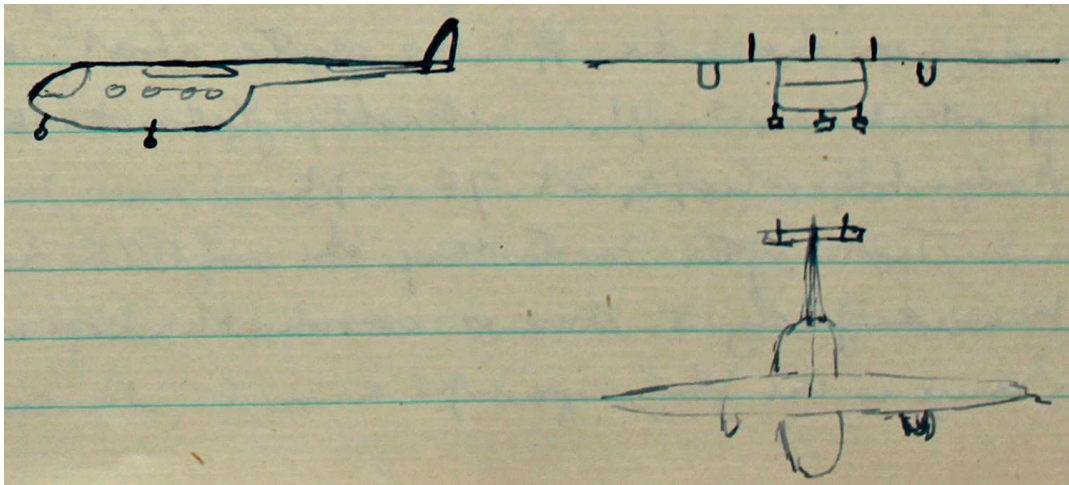
Afterwards, Unwins asked my opinion, so I remarked on the excellent view, & good engines.

The AEROVAN

14.2.45

Mr George Miles has again produced an original & fascinating design. This one carries 1 ton at a good 100 m.p.h. on 2 Gypsy Majors. $8\frac{1}{2}$ m.p.g. and 4 hours range.

In spite of its odd shape & capacious cabin it is not unattractive in appearance.



Below the single tail boom, the tail door swings open a vertical post side hinge, enabling a light car or jeep to be driven straight in. The undercarriage is a fixed triangle with steerable nose wheel & air brakes.

The cabin provides full headroom, & there is a single pilot's seat on the left of the nose. The forward & sideways view is the finest of any aircraft I've ever flown. The ground can be seen a few feet in front of the nose, over the low dashboard. The three position flaps are compressed air operated. The rudder & elevator trimmers are electric – the control being a potent little joystick moved fore & aft to work the elevator, laterally for aileron trim (not fitted) & twisted to work the rudder trimmer.

We flew 3 up at about 3,200 lbs. All up weight is 6000 lbs. At our light weight the take-off was quite short, lifting off at 40 – 45 mph, retracting flaps at 65 mph & climbing steeply at 70 mph.

Just after unsticking, the controls have to be used freely & there is considerable nose up trim change as the flaps go up.

Slow flying 45 mph

The Aerovan was very pleasant to fly. Safety speed with flaps at take-off about 70 mph. We could hold height with one engine at full throttle at 85 mph & she would trim nearly hands off. But she would not climb on one engine, and at full load would lose height.

The stall was about 25 mph flaps down power ON, 35 POWER OFF, ABOUT 40 FLAPS UP. Final approach 50 mph (perhaps 60 at full load) with little or no power on. Path of approach not very steep. Landing run very short. Usual tricycle technique, very easy to land. The steerable nosewheel makes taxiing easy without use of the brakes.

I was delighted when Bob Morgan offered to fly a circuit and managed it very well – his first tricycle solo, second twin solo. He afterwards said he thought it much easier than the Anson, which is of course the easiest conventional twin. His only mistake was applying the brakes after landing before the nose wheel was down. The good view tempted him to taxi rather fast.

What fun it would be to tour Europe with one of these fitted up as a caravan. 4 bunks would be possible, 2 would be luxurious.

George Miles has clearly designed the layout for his own use. And he has a flying boat version, and an amphibian projected. By the way electric starters are fitted.

The Aerovan has a great commercial future and would be adaptable to all sorts of purposes. The only snag is the lack of single engine performance at full load – which is common to the Anson, Oxford & perhaps the Rapide. It would certainly be safer than a single engine type of the same horsepower - but over water would have to be treated as a single engine type is treated.

The dear old Dragon pre-war was most useful commercially. The Aerovan carries more, has more space, easier loading & flies faster on the same engines & should cost less.

Photographing the Lincoln

27.2.45

Today we got our second Lincoln to complete the tests which the weather prevented on 22 December. The R.A.F. photographers wanted to take the opportunity of getting the recognition photographs.

So we set off in the Hudson about 11am under a cloud base of 1200 feet, but good visibility. I engaged the auto pilot and an hour later we were at Woodford – only to find the Lincoln not ready. So we had lunch & were finally airborne in excellent weather at 1500 hours. We met the Hudson over the Dee estuary, after contacting him on our R.T. En route we had tested our 3 engine & 2 engine speeds (both port props feathered).

The Hudson set off towards Anglesey at about 3,500 feet in the sunshine above $\frac{5}{10}$ – $\frac{8}{10}$ cloud at 1200 feet. We had to take station astern, at one side, then above astern, and above on the beam. The difficulty was that we had to hold these positions at a distance of 180 feet! I found it very heavy work, and had to turn off the radio telephone, which was making a filthy noise, in order that Laker could hear my orders for boost.

Somewhere over the Irish Sea, West of Anglesey we turned on our reciprocal & flew steadily at 160 mph, 1900 rpm – 2 boost and 3500 feet while the Hudson took various photos from astern & from below me. All

this took nearly 1½ hrs. Eventually the photographers were satisfied, so over the Mersey at 4000 feet, I did the stalls about 88 & 78 mph – very gentle with a slight preliminary shudder.

Then safety speed with 20° flap; 120 is the minimum at +12; 140 mph at + 18. T Hatch remembered afterwards that at +18 & 140 mph the exhaust flames were burning the paint off the wings.

Returning to Woodford there was a thin cloud layer at 1000 feet and it was laying on the Pennines. Since the Lincoln was for Hucknall, I therefore flew South to Stoke-on-Trent and gave it to Bob Morgan who flew it east to Hucknall. When I prepared to land we got a red light & no green lights for the stbd u/c. F Laker was certain it was only an indicator fault; nonetheless we used the compressed air emergency – without success. During the landing approach, after getting full flap, Freddie had to keep the u/c emergency knob shut, so I worked the throttles myself, entering the aerodrome (grass) at 105 mph. She touched down nicely & stopped quickly against a 15 – 20 mph West wind.

We hopped into our Hudson & took off at 17.20 – just one hour to landing time at W.Waltham.

A very pleasant ride South on the auto pilot brought us home in 45 mins. It was very smoky to the West of Leicester, otherwise a perfect trip. I used only 50% instead of the full 70% for landing since the 15 mph wind was almost at 90°. She touched down easily but had not run very far before she started a swing into wind. The Hudson hand brake is most inconvenient to reach, so I called on Freddie to pull on it – which he did but it would have been better to do it more firmly myself. On a runway it would have been essential.

A most enjoyable day's work ; 2 hours on the Lincoln 1¾ hours on the Hudson – and a nice ride round the N. Wales mountains and the Anglesey coast.

The Skymaster

7 March 45

Otherwise known by the Maker's number "DC4". This great tricycle looks like a giant Dakota with four Wasp engines. The flight deck with full dual controls & radio operator, & navigator behind is very well arranged. Aft of that is the most comfortable crews' quarters I have ever seen. 2 bunks to starboard, crew's lavatory & dressing room to port.

Then the long range fuel tanks compartment and an enormous freight deck, with loading doors aft and loading crane to swing out. A tank or field gun can be secured externally between the two main wheels!

The most novel feature is the power hydraulic steering of the nose wheel controlled by a separate handwheel on the left. This steers only when the nose oleo is compressed. When extended the nose wheel is locked straight. The steering wheel moves only through the same arc as the nose wheel – about 5° either way – the most direct steering since the Morgan 3 wheeler! It is the first vehicle on air, land & water which I'd steered by a power device.

We had to wait at Boscombe Down on the new 3000 yd runway until 3 pm when the station C.O. had finished his flight – Air Commodore Boothman. He was gratuitously insulting to us. Without enquiring our qualifications or greeting us, he said "If I had anything to do with it, you would not fly this machine at all. It is very valuable and is urgently wanted overseas. You've got a 90° crosswind for your first take-off and if you damage the aircraft, I shall make it my business to see that you get into trouble"

We did not explain that it was our duty to fly it and that we were ordered to do so. We simply replied softly that we'd tried taxiing down the runway & bring it back if we did not like it. He then said "You have an entirely new form of control – power steering. You'll find yourself in the air with one hand on the throttles & the other steering, none on the flying controls, if you're not careful" And warned us against turning too fast while taxiing.

So after that dreadful beginning, we took over. Laker started all four engines at first attempt – I just worked the motors for him.

Taxying The minimum turning circle is about 250 feet diameter. The steering wheel is rather heavy & very sensitive. The brakes may only be used to slow up NOT for turning. All steering is done on the wheel.

It is more comfortable with flying controls locked. If unlocked they must be steadied by F/E. but the most astonishing speed is attained with the engines turning little more than idling speed. 50 mph appears no more than a walking pace – due to the clean attitude, the quietness, and the height above the ground. It is therefore essential to taxi slowly and to stop before making any sharp turn – or the nose oleo can be broken off sideways.

The sensation of taxiing is reminiscent of the Sunderland – with no noise or power on.

Take off

The Americans use two pilots. The Skipper steers with his left hand the nose wheel & holds the flying control with his right, while the 2nd pilot opens the throttles. For A.T.A. purposes with only one pilot & a F/E, we decided that the F/E should steady the flying controls forward of neutral, while the Skipper steers with his left hand & opens the throttles with his right (30" boost before releasing brakes). This worked perfectly. At 70 mph I took my right hand off the throttles, on to the ailerons. Laker, as arranged, then transferred the throttles and I eased her off.

Despite the 15 mph crosswind about 110° on our right, we kept perfectly straight and had the wheels up & power reduced to climbing before passing the end of the runway.

As the flaps came up there was little change of trim. She climbed well at 150 mph though 130 is the best climbing speed. I cut the starboard outer engine & found it could easily be held.

Cruise 1800 29" = 185 mph. We turned S.E. at Andover for Thorney Island. The weather was scarcely good enough for our trials & we were pressed for time. Cloud ¹⁰/₁₀ at 2000. Visibility 2 – 5 miles. Along the coast to Brighton, we checked slow flying at 110 mph. 1800 rpm 20" boost with flap ½ down at 20°. 3 engines with No. 4 prop feathered she flew well on A.T.A. cruise at 170 mph. 2 engines throttling back No.3 & max climb on the 1 & 2 engines, she climbed at 150 mph. The rudder trimmer is powerful & direct acting. The aileron trimmer is inconvenient to reach. The elevator trimmer very low geared & stiff.

I was much impressed with her excellent performance on 2 engines. Load 1400 U/S gallons. Crew 6. Freight none.

Stability Excellent, but not so good on the approach with everything down. Directional stability at cruising speed is so good that it is difficult to detect an engine failed.

Trim effects Power down, nose slightly down. Flap has little trim effect, but there is considerable sink when it is raised at low airspeeds & powers (eg. slow flying). U/C has little effect on trim & not much drag.

Mislanding not tested.

Max speed for flap & U/C 144mph which is rather low! I must warn our blokes!

Cruise Curious point. If you build up to 180 mph before reducing to cruise power she will hold it. But if you level at 160 she takes a very long time to do any more; seems to "mush" along tail down.

Radio my first flight with a professional BOAC operator. He was wizard. Working Northolt on Morse to get us weather. Talking R/T to airfield control for permission to land, & directions for taxiing. Switched our radio compass to the Northolt beacon so we could "home" in on it. A great help to us – in the difficult circumstances.

Landing I landed it at Ford. Circuit at 120 – 110 mph. she held height exactly with 20° flap & U/C down (it goes down quickly). Then full flap 40° & approach at 100; the path of descent is not steep with a little power on. The throttles are easily worked with one hand & the aircraft flown with the other. It might be possible to cross the hedge at 90 but I think (so does Shaw) that 100 is better for A.T.A. & gives more control; less sink. There is no need to trim tail heavy but to get the nose wheel up, needs a strong pull back on the stick before giving the order “close”. Then let the nosewheel gently down, left hand on the steering wheel & allow speed to diminish before braking gently & evenly to avoid straining the nose wheel oleo. The brakes are powerful but progressive; no difficulty in using them.

Cross Wind Take-off Essential to keep nose wheel firmly down until at least 70 mph. Acceleration to 70 is quick about 500 yds. Then raise nose wheel decisively & keep it up.

Crew F/Cap Shaw, at my suggestion, flew it from Ford to Northolt, & landed it well. He was trifle to the left of the runway after unsticking. My touchdown seemed a little softer; I think I had a little power on until the nose was up, then said close. He closed before pulling back. C.T.O. flew it for 15 mins & T Hatch did a circuit of Reading. With permission by radio, Shaw did a fly past at W.W.

Conclusion A good aeroplane, like all Douglas jobs. The steering wheel could be eliminated by coupling nose wheel to rudder pedals. I would choose this aircraft to fly the Atlantic, if I had to.

The LANCASTRIAN

11 March 45

My third new 4 engined type in a fortnight. This one was for B.O.A.C. at Gaydon, where it will go to Australia. Laker had already inspected it at Woodford & found it basically similar to the Mk I Lancaster, of which it is a civil version to seat 8 passengers (or sleep 6) & carry mail.

A Ringway pilot brought it down to W.W. for me at 4.30 Meanwhile, BOAC were on the phone worrying about the intermediate stop. I assured them it would be delivered before sunset.

Parked on the tarmac, it looked very high – the nose on a level with the C.O.’s balcony. Uncamouflaged, in its polished aluminium, it looked bigger than a Lanc & sleeker, since the turrets were removed & pointed nose & tail fairings substituted.

I took off in good weather with C.T.O. Laker Clarke & the future B.O.A.C. Capt. of the aircraft aboard. In view of this, we made no handling trials, since he was obviously worried about his aircraft.

South of London there was much smoke haze so I shut down from our cruising speed of 210 mph. & flew slowly up the Coulsdon valley railway at 1,500 feet.

At Croydon the visibility was only 2000 yds; on my final turn I could not see the aerodrome but could see the Neon beacon. By R/T they had given me 290° for landing. It would have been wiser to make a preliminary flypast on 290°, but I decided to go straight in.

As a result I don’t remember checking the green lights after Laker lowered the wheels, nor increasing to 2600 rpm. I went in on 2400 across Purley Way just north of the hotel, crossing the tarmac at about 15 feet & touching down $\frac{1}{3}$ of the way across the field. The run is only 1300 yds, & the only wind was light from the North. She pitched a good deal on the uneven surface, but came to rest alright, with considerable braking.

An approach speed of 100 (10 mph less than Lanc.) is quite enough, since she is 5000 lbs lighter than a Lanc. We were flying at about 43,000 lbs. The engine idling speed of 800 was rather on the fast side.

Ah well, I never expected to be delivering a 4 engine civil airliner to B.O.A.C. at Croydon - scene of my pupil days in 1933.

How big the aerodrome looked then, - and how small it looks now! The Lancastrian was the only 4 engined machine on the field.

Home with Shaw driving the Dominie.

FIREBRAND III

23.3.45

It is nearly two years since I flew the Firebrand I (Sabre engine) – July 43. The Mark III now ready has a 2,400 hp Centaurus and carries a torpedo as well as 4 cannons.

There was no cloud & continuous sunshine but haze extended to 4000 feet giving visibility about 4 – 6 miles down sun & 1 mile up sun. When we took off in our Anson from W.W. the morning fog still lay in the valley; we could only see half way across the field. We climbed above it & ran into the clear on the Chilterns. 1 hour to Brough on the Humber. After lunch, I flew the thing in the smoke from Hull and a cloud of tiger Moths. I climbed South down the Trent for my trials. The controls are lighter, & capable of holding the big trim change produced by extending the flaps. This has been accomplished by enormous spring tabs on all the control surfaces. But the two big snags remain:- instability in pitch, & excessive flap effect on trim.

The engine was rough, but smooth at 1000 revs & zero boost which gave 175 kts (200 mph)

I stalled her at 7000 feet over the Humber, 93 kts & 76 kts. Slow flying at 135 kts, the oil temperature went up to 100°C until I opened the cooler.

90 kts gave a nice landing. The best thing on the aircraft is the Tempest hood and windscreen. It is not attractive to fly, but I suppose it's better than the other torpedo droppers – Avenger and Barracuda.. It is certainly faster.

Home in 1 hour 20 mins against the light S.E. wind, at 4000 feet over the haze, which was thickest at Bletchley & clearest at W. Waltham.

MITCHELL III & Halifax VIII

29.3.45

It so happens that the Mitchell is the only operational type I'd not flown – so I ferried one today from S. Marsden (near Swindon) to Blackbush (near Farnboro) with C.T.O. & F/E Laker.

There was a good 25 mph West wind and good visibility under a 1500 ft cloud base. Taxying out, I noticed that the nose wheel selfcentering action was inadequate at low speeds (like Marauder & Liberator). It was difficult to reach the brake pedals; brakes powerful but do not “grab”. View excellent.

Opened up to 30” against brakes for take-off; the nose wheel twisted left so I had to straighten the aircraft up before opening the throttles any further. This difficulty does not exist on Albermarle & Invader. Unstuck at 100 mph & climbed at 150 mph.

She cruised pleasantly at 200 mph. The flying controls are heavy (not stiff from friction), the aircraft is stable and the trimmers powerful & sensitive. Excellent view. If the Mitchell had the Invader's flying controls, or the Invader had the Mitchell view.....!

Managed a nice landing with the wind about 20° on the left and found it easy to lose speed & keep straight holding the nose wheel up. The Mitchell is an outstanding tricycle in this respect ; there is no tendency for the nose wheel to come down quickly after touchdown. It would not be difficult to put the tail on the ground. After the nose wheel came down, there was no need to touch the brakes until the ground speed was very low.

Altogether, an attractive aircraft and not difficult to fly.

Earlier this day, we collected a Halifax VIII from Radlett for Boscombe Down. It is a stripped out transport version without turrets. The wind was 30° on the right for take-off (the worst side) but we did a lovely straight take-off by opening up slowly & “leading” all the way with stbd throttles. Cruised at about 200 mph at 2000 rpm & zero boost. I did an intermediate landing at W.W. This and the landing at Boscombe were good – fully tail down. This was interesting since there is difficulty in getting the tail down.

Hence we call for 800 galls min fuel for landing. Handley Page put 300 lbs of sand ballast in a special container in the extreme tail, & give only 2 divisions of trim travel forward, 13 divisions of rear travel.

Trimming tail heavy on the approach, we had 11½ tail down divisions. I used the inner throttles to regulate the descent, leaving the outers at – 4. The throttles are too stiff at small openings to use all four together. (R.A.E. injector carbs).

She seemed to float a little more than the bomber, no doubt because she is cleaner and a little lighter.

50 minutes under the Hood

12.4.45

I had an hour with F/C Henderson in a Harvard on instrument flying in the back seat. It was my first experience under a hood, although I did several climb & descents through cloud in my Oxford in 1942, and a few minutes in the Link in 1941.

I was delighted to find no special difficulty, although it was rather tiring after half an hour's uninterrupted gazing at the instruments. We did straight & level at 2000 feet (within +/-100 feet and 10° of the course) complete 360° turns each way at 15° bank within +/-200 feet. Then climbs to 4000 feet and descents to 1500 feet, not exceeding 200 feet per minute. Also a steep turn at 55° bank in each direction through some 150°. I lost about 400 feet on the first, but only 100 on the second. I think Hendy intended me to lose control – as a warning against attempting steep turns.

Nearly all this was done on the artificial horizon and the directional gyro, with a little help from the A.S.I.

The most important lessons learned were:-

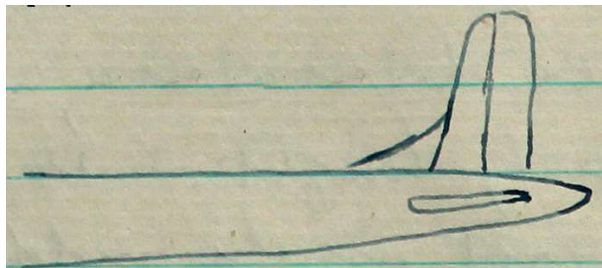
1. Ignore the Rate of climb indicator. Don't attempt to fly by it. It is oversensitive in level flight.
2. Watch the centre dot of the artificial horizon very closely so as to maintain the desired attitude. $\frac{1}{16}$ of an inch makes all the difference between climb & descent.
3. Raise the nose a trifle on the turns to avoid loss of height. Do not exceed 20° of bank.
4. Do not use the rudder in turns. Use the stick alone.
5. To fly straight use the rudder, & keep the stick very still. N.B. On spitfires and the like, the feet can be left off the rudder, maintaining the course with the ailerons. But on large aircraft, it is easier to keep the gyro steady with the rudder.

After the steep turns, I held her straight & level on the instruments, but my sensations were that we had the right wing down 45°! This impression persisted for about 5 minutes.

Warwick II (Centaurus) with Dorsal Fin

Friday 13.4.45

As a result of 3 accidents to test pilots due to rudder overbalancing & locking over in sideslip, or single engine flight, nearly all the Mark II have gone back to Vickers for modification, This consists of a dorsal fin thus:-



I collected the first today in excellent weather from Wisley – S.W. of Brooklands. It was first flight with my new flight Engineer Rodger – a charming little Scotsman. We did an engine failure at climbing speed & power, & stalled it wheels & flap down. No difficulty. Also a mislanding.

Very nice landing at W.W. on the long run in little or no wind.

Warwick V with no A.S.I.

17 April 45

In summer like heat, sunshine & light wind, I took off on the long runway at Wisley and immediately noticed the A.S.I. was showing zero. I was therefore glad of the good weather, the 2000 yds of grass, and that I'd recently flown the type. I decided to take her back in on the circuit at an estimated 140 kts, the A.S.I. shot up to 220! On my final approach at an estimated 80 it showed zero. We made a good landing & came to rest easily in just over half the run.

So they then found the pressure pipe blocked, so they gave me another Warwick for W. Waltham. On this one, the hydraulic hand pump was U/s until they bled it.

She cruised at 160 kts at 1900 & zero carrying a Leigh light & the usual guns.

To Kinloss & back

19 – 20 April 1945

It is five years since I flew North of Prestwick. In 1940 we used to go all the way up, but since then we have transited the machines at Prestwick, Kirkbride or Sherburn, and there collected a return job for the South.

Moreover C.T.O. & I had never visited our pool at Lossiemouth, near Inverness.

So at 11 am we left to collect a Proctor IV at Hatfield, which we delivered to Sherburn in 1¼ hours & had lunch. The weather was typical "High" – no cloud, so we flew at 4000 feet above the haze.

We tried to collect a Halifax at York but it went U/S – flap jack leak. So Sherburn gave us an Anson ride to Leconfield (near Beverley N of Hull). There we collected an old Halifax III to go to Kinloss & to be broken up after 20 odd operational trips. It was in poor shape, dirty; No. 4 gills stuck open, & port tyre had moved beyond the creep marks.

We decided to take it, despite this, since it was going to its grave.

Taking off about 5 pm we flew North to the coast at Bridlington. At Scarborough we had 6000 feet when I handed over to C.T.O. We followed the coast I'd never seen before past Middlesborough, Sunderland, Newcastle & Berwick. There was much industrial smoke at these ports.

Weather deteriorated at the Firth of Forth, so I took over, circled E. Fortune & headed over the water, instrument assisted having no horizon. Circled Leuchars, passed Edzell, then flew due North in better weather under $10/10$ cloud at 3000 feet over the Grampians to Huntly. As we passed Lossiemouth, F/E Rodger reported to them over the radio & asked for a taxi at Kinloss where we landed at 7 pm – in good weather; nice landing not quite fully down. Approached at 100 kts and did not need the brakes (which were weak anyway) until we had slowed well down.

Our Anson followed us in, took us to Lossie & then by road transport to the Gordon Arms at Elgin. We had a pint of beer, and a good dinner (fried fish & chips, then cold meats & salad). A walk round the town (very full of servicemen) & look at the ruined Cathedral.

Next morning we had egg & bacon & thought the bill (14/6) very reasonable. At 9.10 the A.T.A. van collected us & local pilots but the weather had broken after a fortnight's sunshine. It was raining with low cloud but the Met said it would lift after lunch. There were no jobs South, so we got a lift with the Pool C.O. "Biffy" Newman who was taking a taxi Anson to Prestwick.

At our request he used the Caledonian Canal route – we greatly enjoyed the scenery down past Loch Ness. We were at 3000 feet under $10/10$ cloud obscuring the mountains on each side, where a little snow still lay. There is no aerodrome between Inverness & Connel. I thought of our trip in the green Riley as we passed the Connel Bridge & Ballachulish ferry.

We arrived at Prestwick at 3.30 (1½ hrs from Lossie) & had a cup of tea. They gave us a Dakota IV for Kemble which we took off at 5 pm. Their Met information was very accurate. We scraped down over the Wigtown hills at 2000 feet steering 165° for the Solway Firth. The auto pilot was a great help. Over the water the vis varied from 2 to 6 miles but there was no horizon. At St. Bees Head there was a thunderstorm, so I cut out George, and circled once round to lose height to 1000 feet. We then flew underneath the thunderclouds & ran into the clear at Millom. Nice weather over Morecombe Bay. Past Blackpool & Southport. She was doing 150 mph at 1800 & 28", so we put her up to 2000 & 30" which gave us 160 mph. Winds light & variable. Over the Mersey & the Dee it was very thick; I just caught sight of Hawarden below, & set course for the Wrekin. Vis went up to about 8 miles at Worcester, and we ran through another thunderstorm over the Cotswolds reaching Kemble in 2 hours from Prestwick. An Anson (requested by phone from Prestwick) was waiting – so home to W.W. about 7.30.

This was my first trip with our new F/Engineer Rodgers. He was most efficient, helpful, keen & unobtrusive. He works the radio with great enthusiasm, and is a valuable acquisition to the Dept. It is also an advantage that he has worked in the North, nearly as long as I've worked in the South. So he is well known to our colleagues up there, & knows the factories etc. A very pleasant trip.

Two Mosquitoes

24 & 27 April 45

CTO wanted to fly his Argus so he taxi piloted for me. With Mr. Dickens as passenger I collected a Mossie III from Leavesden. This is the dual control version, which makes it a squeeze getting into the cockpit since the seats are side by side instead of staggered.

The Merlin 25 gives +9 at the gate so we went through it to get +12 for take off. We were 30° across a 15 mph S.E. wind; the only odd thing was that the stbd wing went down soon after unsticking & need full opposite aileron to recover it.

The compass verge ring lock was U/S & the London smoke was lying down our route to Pershore. Vis of about 3 miles at Leavesden dropped rapidly to 1 mile as we crossed the Chilterns at Halton. So I slowed down to 150 mph with 20° flap & followed the railway to Bicester – in view of the compass snag. I decided to continue, since the Met indicated good weather out of the lee of London. We ran into the clear North of Oxford, & opened up to normal speed.

In view of the recent instruction to clear the Merlin plugs of lead deposit by opening up to +12 & 2850 for 15 secs every 15 minutes, I had every excuse for giving Dickens a taste of 300 mph & zoom at 5000 rpm.

At Pershore there was no wind; after a mislanding baulked by a Spitfire, I tuned in at 140 m.p.h & had to close the throttle completely to lose height & speed. This is most unusual on a Mossie, on which the usual tendency is to undershoot. The reason was the flat calm. At about 300 feet I opened up to about – 4 and then managed a lovely touchdown, taking care not to close throttles until the nose was up. There being no wind, she certainly “gobbled up the runway” but gentle braking stopped her with room to spare.

3 days later I had a Mark XXX Night fighter with Merlin 76 from Leavesden to Colerne in perfect flying weather. The cold N.W. wind about 20 mph was 40° across the runway at Colerne. I used 40° flap (max 47°) & did a splendid wheeler which called for continuous braking to kill the speed. The landing run is much longer in a crosswind. Perhaps longer than in a calm, but we had room enough.

Stalling the “heavy” Mosquito

3 May 45

Our chaps collecting Mark XXX Night Fighters from Courtrai had been worried by being told they had “equipment equal in weight to a 4000 lb bomb”. We examined two at W. Waltham & found that A.T.A. had ferried them to France months before without complaint. And that the equipment weighed 500 lbs.

As we fly them the lightest Mosquito weighs about 16,000 and the heaviest 21,000 which equals the max permissible for landing.

Then I flew one to Cranfield with T.Hatch & did stalls at 5000 feet in a hole through the cloud layer. We print the stall as 125 clean & 112 dirty for all Marks. I found this one to shudder violently at 135 & 125. Rad shutters open & closed made no difference. Sinking at 2000 f.p.m. prior to the stall.

Now a flap down stall at 125 is serious because 125 is an approach speed, and also the highest stall speed of any type we normally ferry. Then I found that with a little power on (- 6) we could fly nicely at 115 m.p.h. So we wrote an Instruction warning pilots NOT to close the throttles when landing until all descent had ceased. And if landing power off 140 m.p.h. This was already in A.T.A. notes but will prevent trouble with the heavier Marks.

We also pointed out that with cylindrical radar nose, large exhaust shrouds etc. the A.T.A. cruise at 2300 and zero may be only 190 mph instead of 230 mph. 2400 & +4 gives 230 mph.

VICTORY over Germany!

7 May 45

Today the Prime Minister’s announcement was hourly awaited. It never came – presumably due to difficulties in making it simultaneous with Russia & America. I noted at 7.45 pm the B.B.C. said he would speak tomorrow & that tomorrow would be V.E. day – a public holiday and also holiday on VE +1 day.

On the 8th there was a bonfire at Tylers Green & another at Penn on the 9th. all the cottages were gaily beflagged. I fired 4 flares from my verey pistol at the Penn bonfire.

Leaving the A.T.A.

11 May 45

L.M.B. wrote asking me to return to Wakefield as soon as possible. Bob Morgan saw the C.O. who allowed me to give notice to terminate my contract on 31 May – 5 years after I started. The actual date of my release to depend on the appointment of my successor. See 18 June 45.

Of course I'm glad the Firm wants me and that I've got a job to go to, but my work as Chief Test Pilot A.T.A. is so fascinating & so enjoyable that I'm sorry to give it up. But there's no job like it in peacetime and the salary is only £650 + £180 expenses = £830. C.C.W. have generously been contributing £250 as well.

So I've written to Lambeth asking for possession of No. 4 OAKS AV on July 16.

SEAFIRE XVII

11 May 45

Down to Hamble to handle the first Seafire with tear drop hood – which much improves the view. Otherwise it is similar to the Seafire XV or Spitfire XII – the first Mark with Griffon engine.

The weather was perfect. I managed a neat take-off starting with left rudder & full left aileron to counteract torque & did not exceed +9 at 4000 f.p.m at 160 kts. If anxious for more you can use +15!

I much enjoyed a victory shoot up of the airfield at 400 m.p.h. at about 100 to 200 feet. What a fine speed range – over 400 mph down to a stall at 60 kts flaps down. An approach at 85 kts gave a nice landing with just the right float & plenty of elevator control.

This was the fighter with which we started the war. And I thought then we'd finish the war with it. I suppose this will be my last spitfire: I remember so well my first in the summer of 1940 out of Castle Bromwich.

Chief Test Pilot Penrose was very kind & charming.

The JET

15 May 45

A new kind of flying

Last October we examined the Meteor III at Moreton Valance. At last we had permission to do our handling trials ready for ferrying.

We spent the afternoon of the 14th examining the job but there was none ready to fly, and the weather clamped down so we could not get over the Cotswolds in our Argus. Spent the night in the R.A.F. Mess under primitive conditions & without night heat.

It was 5pm next day before I got my flight in glorious weather.

Engine starting is very simple – set the controls & press the button. The rest is automatic. In fact the whole aircraft is delightfully simple & has an excellent view from the cockpit.

The engines idle at 5000 rpm & run up to 16,400 with absolute smoothness & little noise in the cockpit but a deep roar behind.

Taxying is very easy, although no brake compression is provided, and the response to “throttle steering” is naturally sluggish.

One opens to full throttle, & leisurely checks the instruments, before releasing the brakes to take off. There is no tendency to swing. At 70 mph the nose wheel is raised a trifle (taking care not to strike the tail wheel on the ground for the elevator is powerful). Unstick at 120 mph which is attained in 600 – 700 yds. The wheels come up quickly & the flaps can be raised immediately without sink or change of trim. From rest she takes about 2000 yards to reach 180 mph & just about 2 miles to reach her best cruising speed. Of 225 mph. She then climbs at 3000 fpm but the climb is flat due to the high forward speed.

Below 200 mph there is almost complete silence and the initial climb therefore reminded me of a winch launch on a glider. Very very pleasant. Above 200 the wind noise rises to a roar and a whistle at 400. There is no engine vibration & no engine noise in the cockpit at any speed. On the ground observers hear more noise at 400 than a Tempest Centaurus makes.

The acceleration from 200 to 450 is very good. Since she weighs little over half a Mosquito (or about the same as Tempest) – 12,000 lbs, she does not build up speed in a dive quite so much as a heavy aircraft. She seems to stick at 480 mph.

Since the thrust increases with airspeed it is important to get the cruising speed before reducing revs. I chose 13000 = 270 mph for A.T.A. Max cruise is 15,400 = 380 – 390 mph.

The jet tube temps. rise instantaneously with the r.p.m. (like the boost on a piston engine). One must watch the revs & the jet temps.

At a fixed throttle setting, the revs remain constant at varying airspeed & altitude, but drop immediately the throttle is closed. This excellent feature makes it easy to detect a dead engine.

The safety speed of 130 mph is little more than unsticking speed, whereas the climbing speed of 225 is the same as single engine cruise. Single engine climb is 200 & the performance on one engine is excellent – with no propeller to feather etc.

I know of no other aircraft which has a safety speed 100 mph slower than the single engine speed. Moreover the engine constant speeds without concealing a dead engine.

The most important flying difference is that some 8 miles (2 minutes) is required with the throttle fully closed to slow up from A.T.A. cruise 270 mph to 150 mph for slow flying – or a circuit to lower U/C & flaps. Dive brakes will reduce this.

The aircraft is stable, the controls effective, ailerons a trifle heavy for a fighter at high speeds. There are only slight trim changes, and the trimmers are convenient.

The initial approach is at 120 mph – a little throttle giving 10,000 rpm. Due to the low drag of U/C & flaps the approach is flat. The aerodrome is entered at 105 mph closing the throttles as one crosses the hedge. The turbines take some time to die down.

One flies it on to the ground in a level attitude, so as not to strike the tail. The landing run is long unless the brakes are used firmly. She will run a mile at 40 mph due to the thrust from the turbines and no propeller drag.

This is certainly the most fool proof powerful twin. I should think it is the safest high speed aeroplane. It is the most enjoyable high speed cross country aeroplane. But I guess the safe range is only about 300 miles at present.

Provided the different technique is understood by the pilot, it is easier to fly than the Oxford and probably as easy as the Anson; one cannot say more than that! I am making this on the assumption that a 1500 yard runway is available. If only 700 yds, the Anson would be safer for a pupil.

In bumpy weather at high speeds there is a slight tendency to “snake” but this damps out and is no way serious. Bob Morgan says that it is due to “hose-piping” .

She stalls at 90 clean & 80 mph dirty.

At last one begins to see the solution to the problem of noise in aircraft. Now we must reduce the wind noise.

Tempest test for Hawkers

17 May 45

Cap. Broad offered me a Mk II with Centaurus for a test of R.P.M and boost, when I was there today. I jumped at it to compare this, the pinnacle of conventional fighter development, with my jet – just at the start of its development, the fighter of the future.

No forward view taxiing, on take-off or after landing. Distance to unstick about the same, with lots of left rudder to hold the swing. A much steeper climb, at about 30% faster rate at 200 mph. No doubt the jet would do better over 20,000 feet.

Considerable variation of directional trim with power variation. But the throttle gives quick acceleration to 400 & deceleration to 200. And the ailerons are light & powerful at all speeds. One would choose the Tempest in a dog fight. But for cross country give me two engines.

I did a dive test at 450 mph at 200 feet. After landing, the tempest does not depend on the brakes so much.

First Jet delivered by A.T.A.

18 May 45

Jet on Tuesday, Tempest on Thursday, another jet on Friday gave a nice comparison between the conventional & the new.

Incidentally, I have exceeded the World's Air Speed Record of 460 mph for the second time.

I had good weather for Moreton Valence to Colerne, & flew for 45 minutes making my handling trials – mislanding, safety speed, single engine, stalls etc,

After landing, hydraulic oil was dripping from the port wing root. So I was glad I had not lost it all in flight since there is no emergency for the U/C. Just the normal engine pump and the hand pump.

My first jet was on a cool day with strong S.W. wind. Today was warm, humid, & flat calm. It increased the landing run more than the take-off run.

Jet in Strong & Gusty Wind

With $\frac{9}{10}$ cloud at 2000 feet and a S.W. wind of 30 mph gusting to 40 – 45 mph., I had quite a rough ride in the Meteor III. But the visibility was good and she handled well, the tendency to “snake” after hitting a bump was noticeable, but it damped out quickly.

For landing, I decided to use full flap since the flap is small, and an approach speed 10 mph faster than normal – i.e. 115 mph. This worked out nicely and with the powerful flying controls, it was not difficult to “fly it on” quite neatly.

I was surprised to see George Kemp in the taxi Anson use full flap. None would have been better. He said he seemed to stand still during the hold off. Colerne is fully exposed on a hill top.

When I taxied in, they stopped me tail to wind, so had to hold the flying controls to stop them banging about until they pushed the Meteor III into a hangar.

Firebrand IV

12 June 45

To Brough on the Humber & back in a School Hudson – 1 hour each way in good visibility but frequent dense rainstorms.

The Mark IV differs from the III I flew on 23 March, in that it has a larger rudder to resist torque on take-off, & interconnected throttle & pitch control. These are definite improvements.

Capt. [Ronald R*V](#) the M.A.P. supervisor was most charming & helpful. We had lunch with him and Mr Norman Blackburn.

This was the last handling trial I made for the A.T.A. Three days later Capt. [Ranald ?](#) wrote to me confidentially for my frank & critical opinion of the aircraft. So I wrote him tactfully suggesting that his opinion of a Naval type was worth more than mine.

My last Military flight ?

On 21 June I collected a Warwick (Centaurus) from Wisley for a check on the take-off trim setting. I found neutral OK, flap up, but ½ div. nose down is better if 15° flap is used.

On 22 June, O.C. No. 1 Pool asked me to test another Warwick (Centaurus) at W. Waltham since it had been condemned by F/C Marks. It was his first Warwick and he complained that it was R. wing low and had a continuous twitching of the ailerons.

As soon as I took off (under a 1000 ft ceiling) I realised he was right. Full left aileron trim was not enough, and the ailerons “snatched” so badly that I decided to fly it slowly back to the factory at Wisley. En route, I sent T. Hatch aft to look at the ailerons & he noticed a stbd fuel cap cover plate was flapping loose and giving a disturbed airflow over the aileron. We also knew that we had 350 gals. in the stbd wing & 250 in the port. I doubted whether this would account for the bad lateral trim and since the factory was so near, I decided they ought to put this brand new aircraft right.

From Wisley we returned to W.W. by collecting another new Warwick.

After lunch, my last flight in the A.T.A. was an Anson test, with ten passengers.

Departing from the A.T.A.

18 June 45

The last day was spent handing in my kit & obtaining clearance, then saying goodbye to my colleagues.

The C.O. saw me at 10.30 & spoke very kindly of my work since he engaged me 5 years and 2 weeks ago. He gave me an appreciative letter of thanks.

C.T.O. made a final entry on my history Card ; copy was given me in return for £1-1-0 to A.T.A. Benevolent Fund.

So I handed over to my successor F/Cap Fossett who will do the job splendidly I feel sure. He is an excellent pilot, charming, handsome & intelligent man. He has been with me for the last fortnight in order to get the necessary introduction to the work.

One thing that tended to reduce my regret at leaving the A.T.A. was a routine order issued today stating that the whole A.T.A. would be disbanded on Dec 31st. We were to hand over half the ferrying to the RAF on July 31st. They have many aircrews now doing nothing after the defeat of Germany.

So I felt it was better to be leaving now, rather than to watch the A.T.A. wither away during the next 5 months – and finally die.

What a tragedy that this excellent organisation could not be kept together to operate some civil aircraft in peacetime. But the politics of British Civil Aviation are so hopelessly confused, I guess no one had power to make such a decision – especially just now with the General Election approaching.

By the way I thought it very generous of A.T.A. to pay me 3 months basic salary on leaving – about £117.

Returning to 4 Oaks Avenue

17.6.45

Lambeth Council having said we could probably return in July when alternative accommodation should be available for the homeless who have been at No. 4 for a year, we called there today.

Basic petrol having come back on 1st. June, we went in the Riley & met the occupier Mrs. Golding for the first time. She is still bomb shattered from the loss of her home, & said that 10 minutes after she first entered Oaks Avenue, our front windows were blown in by another V bomb.

The house is badly in need of repairs & redecoration. We shall try to get some work done before we move back.

I was glad to measure the garage & to find that it is just long enough to accommodate the Riley Kestrel – with a foot to spare.

Pamela was born

13 Jun 46

I Fly Again

9.6.46

After a year on the ground

Having joined the West London Aero Club I ran down there this Whit Sunday & met Secretary Metcalf, Chief Engineer Macpherson & instructor Joan Hughes.

So far they have only one machine – a Moth Minor – but hope to have the use of 16 later – mostly Austers & a couple of Hornets. At present the rate is £4 per hour, but they hope to reduce it.

Private owner of a Proctor Eric Passold chatted with me, asking advice re forced landings. Eventually asked me to fly a bit with him; he is not confident with the machine yet – has only done 10 hours on it. So we went up to 3000 ft & did stalls & slow flying. He then did a nice landing.

I then flew a circuit in good clear weather, slight cross wind. Found I'd almost forgotten our standard cockpit drill, on which we used to depend so much! Good take-off, decent landing, which pleased me for I've not been a year without flying since I got my license in 1933. I was interested to find myself quite confident in handling the aircraft, although a trifle unpolished. A couple more circuits would cure this rustiness I think.

The new Mark V Proctor is a civil version of the Mk IV. It has a better view than the earlier Marks, but is really a pretty obsolete machine. Cruising 125 mph at 1800 and – 3. Very poor climb – about 500 fpm.

August 1953

On re reading this, I notice that I failed to mention (modestly?) that the A.T.A. Technical Dept. gave me a dinner on my departure June 1945. It was a very touching occasion at the Hind's Head at Bray. They could not have been kinder or more flattering in their speeches.

The END

Of this book