Thank you for downloading this transcript featuring **Frances McLaren**

Before you read it we'd like to make you aware of our copyright terms and conditions.

Name: Frances McLaren
Regiment: WWII Bouncing Bomb Scientist

Date Transcript: 15/05/2011
Transcribe By: Emily Wheating

Timecode	What is Said
01:00:00	Start of Film 1
01:00:01	My married name is Frances McLaren. I'm 87, and I was 15 years old when the war broke out. Our school was evacuated and I chose to be evacuated, some of the pupils stayed. I was evacuated a year ahead and I couldn't have been sent to more lovely people. They were so gracious, they had no family of their own, and after the first few months the rest of the evacuees went home but I stayed because it was an important part of my studies. I had 2 more years to do at school and then go to university to be a master science teacher, to be trained for that.
01:00:45	However the navy commandeered the ground of these lovely people and they got about a month's clear out, that was 1940. And of course I thought I could travel from home but the educational authorities they wouldn't allow that, so they found me another billet and that was in the little village of Rue, which is the actual place where the marine aircraft experimental establishment actually was. So each day we went past in a school bus and of course we all young girls waving to the RAF men and we got waves back. I'd never thought I would be inside, I saw often from the outside.
01:01:26	I passed my exam quite well, but during the exams I had a blank patch and decided to go home and buy an evening dress because one of my girlfriend's father who was a captain had got two tickets for this dance on the hospital ship lying off Helensborough and of course I didn't have an evening dress, I just had a tunic, a kilt and a skirt, that was my habitat. So I went to see these, got my dress and I'm standing before my father reading his paper and I'm saying "Dad, is the hem even?" and I never heard what he replied because bombs started to drop then.

01:02:07	It was just “Wumph!” and from then it’s just a blur, but the thing was they didn’t stop bombing, it was mostly incendiaries and explosives that first night. My family, which is my sisters and my brother, they managed to come home in the dark and we all huddled in the hallway until light. When light came, the police came round with loud speakers saying everyone must go out of the Clydeside area because they expected more raids. So my parents, I had my holdall with my pyjamas and slippers and my school satchel, and my father lifted me into the back of a lorry and away I went to Helensborough.
01:02:50	I had just become 18, I had past my final exams and I couldn’t go to university because my parents had been bombed out. So I had no home, so I actually had to stay on as an evacuee although I was quite fully qualified noe to go to university but with having no home I had to stop that arrangement. And one day I went home with one of my young friends to help her with her mathematics and of course I learnt later that her father was one of the leading scientists, and from there he said “Would you like to come and work for me?” I thought he was just teasing me but he was just putting me at ease and he said “Oh no, young scientists, they all want to go to the battlefront”, similar to many young men did in both wars. He asked me what my range of studies were, which I told him – Maths, Physics, Chemistry, English, French and Latin for the languages, and he said “That’s quite satisfactory” but I would need to have my father’s consent to fly as I had just become 18, 21 was the age of consent in those days. So I got permission from my people who were living 80 miles from Clydebank.
01:04:07	I left the high school on Friday the last day of November and I spent the weekend dying my school blouses because I had no grown-up clothes. I left the school, gym tunic, blazer, everything; scarf, hockey stick on the Friday, and on the Monday I went into Marine Aircraft Experimental Establishment (MAdoubleEE). There is something I should tell you, it was very important… We were called boffins, now today the word boffin is used very loosely for scientists but boffin is that you were a strange bird without wings that flies, that’s what boffin means. You refer to scientists as anything else but we don’t fly. Anyway, looking back I was really the prototype scientific assistant. Because it was like, in the old days if a lady wanted to be a doctor, it was the very same thing. They didn’t think of ladies being doctors and they couldn’t have ladies as flyers and doing all the things that men did but the C.O who was the head said that we’ll have to recruit young women, and that was it. I was duly interviewed, gave a range of my studies and then I also took a course at Glasgow Technical College which was Applied Dynamics, as well as in Electrical Science. I took these two extra courses which really made me fit for the job. I started on the Monday and that lead from one thing to the other, it was quite a review, right until I ended up at Martisham to radio warfare.

01:05:43	MAEE was Marine Aircraft Experimental Establishment, and it was a small outstation from Farnborough. It was a marine aircraft at Farnborough and at Boscombe which was another outstation they would do the land aircraft. It was quite popular of course even before war with the Schneider trophy and that, and that was my scientist was in that too, the Schneider trophy and course it blossomed from there, the original work they had done there. You see the benefits of 8 flying boats was that you didn't need a runway, you could get a sheltered cove and land there quite safely. You didn't need to need expensive time on laying the tarmac and all these things. So the seaplanes were very popular in these days, they used them for the coastal command, supervising what was coming in you see.
01:06:43	It was basically doing the design and the development of sea planes, how to get the best turnover from the minimum weight, fuel consumption, just as in a car, the cars are the very same, their dynamics are same for a car as they are for an aircraft. The most modern ones are just the basic same designs from the marine experiments that we did there. Both the model and the land planes as well as the sea planes (only they were on floats), and the keeling up to the shine like that.
	Start of Film 2
01:07:17	***Tell me what you were learning to start off with, what were you doing?***
01:07:22	What I did, my basic work was working on the hull launching tank. Now if you think of an escalator coming down, that was what it is and it had a big long tank of water. Well according to where they fitted, we did model hulls on both seaplanes and landplanes because landplanes have to be strengthened to resist having emergency landings whether it be in water or on the ground. So we had these models and I would be at the top to release it, we could control the weight, the angle, how it hit the water and everything. At the bottom of these little models there was what we called a DVL instrument, it was a little disc about 4 inches in diameter and fitted within in that was two little levers with diallers at the end and they recorded the time and the pressure on the little diallers. I would take out these little slides, take them into my darkroom where there was a metaport, that was made in Germany and so were the slides made in Germany, and the slide were always made in Japan needless to say. I would go in there and draw traces, draw graphs, pass them to my chief and he would make them into full-scale results.
01:08:38	***What were you measuring for?***

01:08:40	Pressure. For the design, they wanted to know the minimum strength of the hull for the maximum use as airways whether it be for military or passenger. Naturally you don't want to make it too heavy because that was the safe for men load it can take. So there is different loadings where the CG is, where the multiple pressures, what the distribution of the load is, you get that in a modern aircraft. The good seats will be the most comfortable seats. You remember, it was just over a year ago an aircraft crashed in the river Hudson in America, well that pilot must have been well briefed in his aerodynamics and hydrodynamics because you notice his aircraft never broke up so he had the opportunity to land the right way, and fortunately the wind had been in the right direction and he landed safely where it wouldn't break up. Of course water can be as hard as concrete but if you notice the passengers were able to come out on the wing, and I don't know if I've ever seen an aircraft that's survived an emergency, you'll get them broken into lots of pieces. So that's the thing, loading and everything, money.
01:09:58	***Can you tell us more about the kinds of experiments you were doing and what they were for?***
01:10:03	Well that was for the loading of the aircraft, what was safe to fly, the maximum good you got from it and the minimum you had to put into the basic laws of dynamics. They were braced for certain conditions in the sea, so if they knew where to put the CG it was safest condition and they knew how to load it, how to distribute the load without any danger and that would cover rough sea, calm sea and whatever. Of course all that work you just had to keep repeating with different set ups.
01:10:38	***What was it like being quite a young girl, just out of school doing very important work like this? How responsible did you feel?***

01:10:46	Well you thoroughly enjoyed it really, and of course it was top secret and you couldn't discuss it with anyone. What they learned from the models they were able to put to practice on the full-scale which saved money and time. We put into full-scale, take-offs and landing patterns what we learnt in the hull launching tank from the models. What I learnt from them all I would put into a final draft and the top scientist, he would decide what was safe, what was the right thing to do, how much fuel it could consume; he did that full-scale. After I was there for about a couple of months the C.O who had given me a salary off the top of his head, because there was no official salary, and about two months later when I got my pay slip I had been reduced to the official salary, I'd got the red tape. I went to see them and said "I'm sorry Mr Gardner, I can't carry on, and that won't keep me in lodgings or travelling expense or food." He said "You just stay there, you are doing very well". He was happy that I could do the work which I did, and I enjoyed, and when you enjoy something you do it well. But it was because I had fitted in, a young woman fitted in with the raff. It could have been awkward or embarrassing but it wasn't. I was quite naïve, a schoolgirls mentality, they didn't know I had just come from school, I was glad to. The thing was the Raffs couldn't really make out what I was really, they didn't dislike me but they were a little bit fearful because they had seen me younger than them, a young girl going out flying, out in the water with an nanometer and a stopwatch or whatever and that was it. So, when I went there the first the basic word was the hull launching tank and then flying, take offs and landings, we usually did about six at a time. We made ways for that, there was no need for a parachute or anything because we didn't do any tests much above 5000 feet.
	Start of Film 3

01:13:08	They were Sunderlands mostly but there were smaller aircrafts too, there was also a Catalina and that was used for photography because they have a big blister on each side of the huge launching pad. But it was mostly Sunderland flying boats and actually there was a Lerrick, which was a twin engine air/marine aircraft and it had crashed on the Thursday before I started on the Monday, I didn't know that until sometime later. It was really underpowered and it crashed into the hillside because the airlock was in the middle of hills on either side, and I understood all were killed except one civilian scientific officer whom I worked later for when I came to Felixstowe. On board I would either work the switches or read the stopwatches and times. On board I would be what you call a photographer, my eyes were the photography, quick fix, switching, watching all the things. In the office I was working on a slide show, I was reading all the calculations. Sein Senior was a small flying boat that crashed and we could again attach model hulls to various aircraft of a 3rd scale Sunderland or anything else, and that's what we did but that one actually crashed once. It was very flimsy, the RAF men didn't like it, they called it 'the string and the brown paper aircraft' because it was really so thin, when you sat at the back there was an angle of 45 degrees. It was a two man outfit, the other zero, he rant the jet one, it was only single pilot for seating and you had to lie on your tummy behind the pilot to the work the instruments.
01:15:01	***Can you tell me a bit more about what it was like taking a flight in one of those flimsy planes and what your job was?***
01:15:11	It was all the same, we were measuring every time on the bottom of these scale hulls of mainly Sunderlands, and on the bottom of these aircraft there were these little diaphragms placed at particular places. The maximum pressure and the longest lasting pressure was at the main step, if you look sideways at a Sunderland, there's the nose, then there's the main step and then there's the back step. Most of the little diaphragms were around the main step, before and after and they were just little slips of steel about 1 inch by 3 inches if I remember correctly, tempered steel, made in Germany, and they would be put in and prior to that they would all be calibrated so that they knew when they got this reflection that was so many pressures. In every aircraft they all had these GVL slides and that's what gave us a result.
01:16:17	***What was it like for you being a young woman flying in one of these small aircrafts for the first time? Can you remember your first flight and how you felt?***

01:16:26	I will always remember the first flight because the RAF men had cornered me really, like a little sister, I don't remember any sexual advances at all. They managed to vamp the lady in the tearoom for a box of cakes and we had a tea party when we came back, it was to celebrate my first flight because they had a working galley aboard. The Sunderlands are quite spacious place, quite roomy, and that's how they celebrated. The lady in the tea shop was who I went to see when I needed to use the toilets. There was no arrangement for me, and if I had walked to headquarters it would have been about a quarter of a mile. Walking that distance when its wet and cold in Scotland is never good, so I made arrangements with that dear lady and she said that would be her war effort and that would be my relief that was all settled in more ways than one!
	Start of Film 4
01:17:43	No, we were all just keyed up for the moment. You did the job properly. And I really don't even remember being afraid, except for this one time when they developed rockets for 'Dive bombing Sunderlands. I was only there for 3, 4 months, and this job came up. They wanted to invent a rockets for 'Dive Bombing Sunderlands' because the submarines were having a lot of trouble on the north Atlantic convoy. They were decimating the delivery of the stuff, the submarine, they went like wolf packs and surrounded them. So we flew from the West coast of Scotland, to an Island called Irie, 80 miles. Bomorle was an RAF station, well there we bombed up there was a rocket in each side of the wing. But before they did that, they did something, what we call in the RAF a dummy run, you have to be prepared before you go into action. There was only a top pilot, a rigger and a test pilot. The rest were left at home. And they wanted to see how the Sunderland would respond, as the Sunderland wasn't a dive bomber.
01:18:52	The wing had actually moved back one inch, but the pilot made the necessary adjustments, so all aboard we went. It was my duty to sit in the second pilot seat. When they first started the run, it was 2000 feet, when they raised the bomb, 1600 feet, when they started out of the dive, 1200 feet, and we usually levelled off at 2000 feet. And I had to read all of these altimeters, and take the angle of dive etc, all the things in the cock pit, quickly at these stages. But one time we only cleared the surface by 80ft. I can still remember it, it was as if someone had put a bucket of ice over my whole face and my head, so it must have been the blood draining. There was a deadly silence in the cock pit, and they when we all came to, no one could look at anybody else, they couldn't speak! That was just once. But it was so successful the rubber dinghies being simulated submarines, and we went back after the second day.

01:20:00	But again, being a woman, they had no place for me. They didn't have a bed for me, so they put be in some sort of nursing hut. One bed, and it was cold and the bed was damp, and I was tired and I was hungry. I think I must have eaten at the NAFFI, I wasn't an officer then. If I had been an officer I could have gone to the officers mess, a meal with the pukka red tape. And of course the test pilot he didn't know what to call me, I was just a young girl and he was in his thirties. So I said to him 'How will I know when we release the rocket?' and he said to me 'Honey you'll know!' (he called me Honey) and I did, well you know what a rifles like, you recoil in your shoulder. Well just for a fraction of a second the Sunderland, 'wuff', it stopped, and down it went, so I knew alright.
01:20:54	They were lovely there. The man that I worked with, AG. Smith, Bert Smith, he was my senior; I helped him with all other things as well. With the whole launching tank, that was his baby, and I did all the work for him. Then he went to Balmoral with me as well.
01:21:11	***Can you tell me a little bit about what you were doing on the dam busters?***
	Well, I didn't know, it was called 'Top Secret Highball' and I was transferred there to headquarters which had taken over a large house. I was put in one of the back rooms which would have been the servant's room, and the only access to it was through the kitchen and up the stairs. I was put in there under lock and key, and I had the films of the Dam Buster tests. The revolving cylinder was 60 inches long, 50 inches diameter, the exposures in it were 6600 explosive weight, and it bounced 3 times before it him the dam and then it sank. It was designed for that purpose.
01:22:03	Prior to that I don't know, but I understood there were several other shapes, balls, it was called 'Highball' initially, but that was changed to another name. It didn't keep the steady plying, they skirted off to the side, until they came up with the Highball, and it was absolutely successful. It actually damaged the dam, but they had to have 5 attacks. The first 4 were dummy runs. It didn't reach the end, and there were hills on either side, the scope was limited and it was in the first run in that was when the mooring was damaged. Then they went on to the Eder, and that was again damaged. Then there were another 2, the Sorpey and the NND I think they were called. They didn't go on, but at that time they had played their part. They were recalled back to their base.
01:22:57	***Can you tell me about the experiments that you did on Highball? Can you talk me through it in quite a lot of detail?***

01:23:03	No. Well if you see the picture of the Dam busters, even the little thing I have over there that my husband made, it's a cylinder, just a continued piece, like a baked beans tin. Just a cylinder, not a ball. I wasn't told anything about what it was, and of course coming and going I was warned not to talk to anyone. There is a little white dot, from that dot I would get the rate of decent, the angle of descent, where they dropped it, and all the other little details. Again, I was the computer back in the dark room.
01:23:38	***How hard did you find it to do all of the calculations?***
01:23:40	I didn't find it a bit hard at all. I had a good tutor, A G Smith, Burt Smith. He was very good and even I was quite surprised when he said 'How did you get on at the tech college?' I said that I had passed well, at applied dynamics, and he was more jubilant than I was because that made me fit for everything you see. Helping when we were on shore when we were seeing to an aircraft, the loading of an aircraft, anything like that. I was fully qualified for the work, he passed me, I did it well, I did it accurately, because I liked it, I applied my mind to it, that was it.
01:24:18	***When you were working on the bouncing bomb for the Dam Busters, did you have any idea what it would be used for?***
01:24:28	No I didn't, it was top secret. As I say it was nothing talked about, even anywhere. Otherwise there were some things you would say to people within your own group, but not with the Highball. I was just taken out of the Piers technical office, told to go up to headquarters, then 'this' by Burt Smith, and was told 'Francis go up them stairs', and I used to go up the stairs and was locked in. I was just sat down and he told me what to do and that was it. It was the same principle as other aircraft: angle, speed angle, angle of dive, ESI, all these things
01:24:05	***Can you tell me about any other experiments that you worked on that really interested you? Have you got any other special memories?***
01:25:13	The one when we developed the Rockets, because that was exciting. We knew what they were going to be used for, and we got the red carpet treatment at Balmoral too because it was very important. It was so successful, two days, think about it, and it was put into costal command right away I understand. It made a big difference in the war, the North Atlantic convoys, because there was a lot of damage done, and the loss, not men but vital supplies and shipping. So that was a highlight I would say. At the Dam Busters, I just knew it was the Highball, in a room by myself, it could be a bit lonely too.
	Start of film 5

01:25:58	***Can you tell me in quite a lot of detail about being in that plane, making the measurements when the rockets were released?***
01:26:06	I was sitting in the second pilot seat, beside the test pilot, and I would have my stopwatch and clipboard, and I had it all ready to write down. I had to be quick. At these stages they started, at 2000 feet I'd read the instruments, at 1600 ft when they raised the rockets, I'd read all the instruments, 12000 ft I would read all the instruments, and it would level off and we would put the final thing in, which was usually about 2000 ft. Roughly. It was just a case of being very quick. I would write, write, write, there was nothing grand about it I would have to be quick, that was the main thing. When you're young you can be quick.
01:26:52	That was in 1943. Well after that it was just a case of testing aircraft, take-off and landing, bounces we used to call it. And then when then war finished on May the 6th I think it was, they started to dismantle the whole launching tank and take it back to its permanent base in Felixstowe in MAEE. I didn't go down there until October until VG, VG Day was on the 15th of August, and then I went down there in October. Then I went on the hull-launching tank that was the work I did there. Then by that time, flying boats were out of fashion, aircraft were coming and of course the jumbo jets now.
01:27:39	But may I say, I had a reunion with my two scientist friends James Hamilton, and Professor Allen at Duxford, (and the test pilot, one of the test pilots). They said that the work that we had done there was the basis of all aircraft design today. We actually had the reunion at Duxford and the aircraft that's there, the Sunderland Mark 5, was the one that my husband went out with his team, to Lagos, West Africa. They tested it the for tropical times, and it was a real tropical time as they even had a hurricane. The new Sunderland was the only way that was right side up, all the other aircraft were turned over. Of course it went through its paces then, and that's the one at Duxford. My husband went, and the man said 'This is the very prototype', and my husband said 'Are you sure?' and he said ''Oh yes,' and then Jim told him, and he was most interested. However Jim didn't go in it, I went it it, as it had actually had been emptied out and used as a café at one time. I think in France somewhere, Jim wanted to keep him memories, but I went in it.
1:28:50	***How much did you think you were helping the war effort doing the help you were doing?***

1:28:54	Yes, you felt you were helping. You felt that, especially with the rockets for instance. And all the other stuff too, we'd go into professional aircraft as well as seaplanes in wartime. Of course you see the aircraft that fly now, the world is a village isn't it now really, the way they fly. I got a phone call from my professor friend, about10 years ago, half past 9 on a Saturday night. He said 'Hello Francis' he says 'I been thinking about you all night I've just been informed I am one of the 4 top men in the world for the work that we did in Scotland. I'm writing my memoirs, I'll send you a copy, and I've got a part in the British war museum.' So you'll probably find my picture there in Duxford, and at the war museum, I've never been back to Duxford to see it.
01:29:45	***Wonderful, that's incredible isn't it? You were talking a bit about the jets. Can you tell me what you were working on with them and what it was about?***
01:29:49	Oh that was general performance you see, that was the prototype thing that actually crashed. The day before that celebration we used to have at the end of the war, September, they used to have a display throughout the country. One of the pilots took it up for a practice flight in the morning, however it crashed, they never found out what happened. His body wasn't found with the aircraft, and it crashed and he was killed. It was very sad. But as I say the jets were coming in to please. I actually was posted from there to air sea rescue, and there I had met the man who has survived the Lerrick crash, back in Scotland. He was V.N. Drake, he was a scientific officer.
1:20:38	I had been promoted by that time to being Assistant Experimental Officer. I went to London, I went to London only as temporary Sea Civil Service. I went to Burlington house for my interview, where people asked me various things. I remember people were interviewing me, and I had been re-established, and I had been promoted to 'Assistant Experimental Officer' and that's where I went with Mr Drake. That where they had single seating with the K type, for the spitfires for when they pranged in the water. Then there was a 5/6 seater, that was 5 normally, 6 in an emergency and that was with and without canopies. Then there was a 9/12 seater, 9 ordinarily, 12 in an emergency with or without canopies. There were other ones, the D type, the H type, but these dinghies are the ones that are used today. But of course now they will have the manmade fibres which were strong. We were only limited to cotton and linen with cross weaving to make them strong.

01:31:41	What I did, was I would test the dinghy's inflation in the cold hanger, and would watch how quickly or how slowly they inflated. We did it with different pressures of gas, CO2. We did it with different pressures of supplies of C02. Well if anyone crashed in the water, they would be suffering from shock initially, so it had to be easily accessible to haul themselves aboard. It had to be safe, to stand to the waves, and the waves that would be coming over it. All these tests were done. I would do them in the hanger, and then I would go in the water. And I would go to the engineer officer and I would say 'Can I have some of your men for ballast' you see I needed 5 men aside from myself for ballast, 9 men, beside myself. I would tell the men 'I just needed them for their body', and of course there was a rush. And that was it, they volunteered. But I will say when we got to the dingy, of course the stand by boat will be there, of course the men would realise what they had been volunteering for! They'd say 'Not bloody likely' and I'd say 'Come on' and I would jump in first. It was quite safe. But of course ignorance is bliss.
01:32:52	I could remember the men thinking 'oh dear' and I went in. We would sit out there for a while, I have photos where I am sitting looking out the canopy watching. But there was always a stand by boat. But we would sit out there for some while in high wind and high rain, and high sea as well. Because it had to be made safe for anybody that was injured, in shock, whatever. They are still the ones that are used today. Maybe there are little differences, but basically they were the ones.
01:33:24	Then one day I was called up to my CO friend who was the head man now, Burt Smith, who I had first worked for and Burt said, 'Francis your posted to Martlesham.' I had been living in Felixstowe in a 'Prefab'. The Ministers supply had granted me 30 prefabs if they had given 18 to their workers, then they could have 12 for the town residences, and that's where we had been living in our very own home.
01:33:50	But I was posted to Martlesham, I had no choice, but that was very strange. The Doctor by this time… Oh I didn't tell you, I had an accident, with a Seagull. It was an amphibian aircraft, and the photographer and I were going down to the marine section to board one of the craft and make certain measurements on the anemometer, speed, and the photographs I would analyse when I got back to the base... And he opens up the engine when we were right behind it! And he lifts the photographer and myself, a big six foot man he was, and we both rolled off and we both sort of both blacked out for a minute. There was yelling, and then of course he stopped. They should have really had someone there. We had just come out between the two hangers. It was squadron leader Squires, and do you know he never even came to apologise. Yes, so he was my 'Bette Noir' my whole life after that. From the 7th December 1949, I have had a backache, because of that. I was just reminiscent recently; he didn't even come to apologise.

01:35:15	He was one of the test pilots, actually, I believe his son, when I told that to my friend, then he said 'Oh dear, I won't talk about him, his son is Air Vice Marshall now!' No hard feelings, I am just telling as it is! As it was, because that influenced developments. When I was posted to Martlesham, the doctor has treatments. Steel jackets, big small, plaster cases, diaphragms, physiotherapy and my back continued to deteriorate. But eventually I got used to it.
01:35:36	When I was posted to Martlesham, on the Thursday I had gone to see this house as Charsfield. In the office, my two assistants - one had actually been saying to his friend (who had been living in London) 'How would you like to have me a house and bring me a wife down?) and he said, 'Oh no I don't think so' because he had a lady friend at this end, and he had a wife at the other end. So, (he'd be dead now so they don't know this) no matter now, and this is how it went. So I then prepped up my ears and said 'What a house for me Pat?' 'Oh' he said, 'I didn't know you were interested Francis' and I said 'Yes, I must get out the Prefab.'
01:36:14	So I went I went there on the Thursday, we moved over on the Thursday. And on the Monday morning, and as I say, my friend the CO had said 'Francis I want to see you, you're posted to Martlesham.' Now I had never heard of a married woman being posted before. But it was just my expectations I expect. And you know, again I was the lone ranger, and I was posted out to the BT flight, and now that's where the Tesco's superstore is. And that's where the office was, a BT flight.
	Start of Film 6
01:36:41	***Can you tell me what you did when you were posted in Mastersham?***

01:36:43	Yes, I will tell you briefly, as my memory is not so good for that. There at Martlesham, we worked in conjunction with Bodsey, a reader centre. What they would do is: The aircraft would come and they would board the, what they would call 'the window' it was little strips of metal. I can't remember what metal it was (whatever). It was a little strips of metal, and they would drop that. Of course it was recorded in the radar screen. And of course they had variations of concentration, of height, of wind condition. We were given a left had jeep, so that we could drive in the foggy weather, out to Bodsey, and be guided by the crashed heathers. There were no road markings in these days you see. We would go down into Cabin 5 with the RAF officers, get the stuff, they'd give me the results on the screen, I'd go back, take them to my office and analyse them, and then give them to my senior. My office was just next door to where the flight crew were. They were all men, there were no other women. And if I wanted to go to the toilet, I had to walk from here, down to as far as the bottom of the road junction there. It was a nightmare all the time! Except for when I was in charge of the library one year. I took all of my work into the library and it was librarian plus for one year.
01:38:02	***Can you tell me a little bit about the experiments you were doing to stop the radars there? Could you explain it a little bit more for me please?***
01:38:10	Well it was initially, well you see that was a decoy, it looked like the flight of an air craft, and of course it wasn't in the early stages in the further development. Because Martlesham was a blind landing experimental unit, that was the outfit officially. They worked in conjunction with Bodsey which was one of the leading radar places in England, even during the war I believe. And that was it, I just got the films and the things off the screen and I went to work with my slide reel and I had an adder machine for that. Cause I had to have so many points, and so many places after the points. And that was it.
01:38:53	***Can you tell me how they would have helped the pilots flying over to Germany?***
01:38:58	Well I don't know, that was the early start of radio you see, and now of course it's all sophisticated. But that was just a learning stage in it all. That was just a decoy for the Germans, they thought it was a fighting aircraft – no it wasn't. You see it was just a window.
01:3916	***Do you think about the number of lives that have been saved by the work that you and the rest of your team did?***

01:39:21	Well that was one comforting thing. As I say, with the dive bombing one and they never got the Highball, because they were very successful, the Mooring, and the Eder. I mean places were flooding, the electric supply was stopped in areas, and the electric house was stopped. And people working in the land the farms and factories were all flooded where they made instruments. I understand was more damage made at the Elder dam and the Mooring dam, and after that the aircraft had to go back to base. They had been successful in the first two, and they were very limited. The area to manipulate the aircraft wasn't quite so good, on these two latter dams. And by that time the fuel had been running out too. Fortunately coming back they didn't have to carry 6600 pounds of dynamite and explosive. And they would just come back after that. The fact was it was a great success, you killed Germans, but you saved British it was a sorts of, one of those things that happen in life.
01:40:32	***Were you ever amazed, Francis, that you were allowed to do this work as a young woman?***
01:30:37	Yes I was, even more now with hindsight. But, there was nobody else there to do it. The senior scientist there should have been doing it, you see. But they didn't come for a good year, till June, and I'd already done the dive- bombing and the highball stuff. Buy they were the ones, Sir James and Professor Allen should have been doing it. But there it was needs must, and they gave it to Francis. And that became the by-word, even in the office, 'Give it Francis' because, if they wanted it quickly. Because if you'd give it to the new person, who wasn't familiar with it, who would make mistakes, (they were only human) and by the time I checked it, it was quicker if I was going it myself. It became the by word 'Give it to Francis', I didn't mind. I liked it. Keep busy, because there is nothing worse than being bored.
01:41:34	***What did you do at the end of your career with the MOD, can you tell me how you came to leave the MOD?***
01:41:39	Well my back got so bad, and if you're doing a man's job, and receiving a man's salary, you should be prepared to do a man's job. Well I couldn't crawl in and out an air craft and carry accumulator and that so the medical officer examined me, and then I went to a top consultant in Ipswich, Bernard Street. And they discovered that my right leg was deteriorating because of my spine, it was a very painful thing. I was even going to St Thomas' hospital as well, and they said it was a very real pain, and that was it. And I finished 1957, in June.
01:42:25	***How did you feel to leave?***

01:42.27	I was glad by that time. Because I was struggling, and to a certain extent it wasn't the same after the war. No not really. Even at Felixstowe after the war, it wasn't the same. They recruited young girls at Felixstowe, nothing against the young girls; I was never one of them. Although I was the only woman, I was lonely; the other women had gone back to Scotland really. I stayed because I got a good job and I enjoyed. And actually it suited my health here it was warmer and dryer and that's what kept me. And of course my husband too – now he's quite an exciting story he could tell you. But he died just over a year ago. But he was there standing in for me as I would for him, he would do the analysis and the calculations, he was hands on. He was a Scientific Electromagnetic Engineer that was his official status. He would calibrate the instruments, install them in the aircraft, make sure they weren't damaged and that's why he went out to west Africa. He was in control of all of these things, to see that we got an accurate recording. Because there was no use if we got a false recording, it was a waste of time wasn't it!
	End of Films