JIM TURTON

Edited transcript of interview with Jim Turton conducted by Chris Eldon Lee at the BAS Club reunion in Cardiff on 12th June, 2010. Transcribed by Catriona Zerfahs on 4th July, 2014.

[0:00:00]Lee: This is Jim Turton, recorded by Chris Eldon Lee at the BAS Club reunion in Cardiff on the 12th of June, 2010. Jim Turton.

Turton: Well I'm James Turton, otherwise known as Jim to all my friends. I was born in Bristol, and that was on the 3rd of August 1951.

[0:00:22]Lee: And what was your first brush with the Antarctic?

Turton: Well that's rather interesting because in my school holidays I used to work in a boatyard in the village I lived in well still live in and eh..

[0:00:38]Lee: Which is what?

Turton: Littleton upon Severn, a little village on the banks of the river Severn and I worked in this boatyard I worked alongside a carpenter and we were building this wonderful great big 52 foot trimaran which was being built in the boatyard and I was just, because I was good at carpentry at school and that's why I went along to help them in my school holidays, and I sort of heard nothing more about this bloke after I'd left and many years later, 1973 I think, I went to a pub which I don't normally go to in the local town and I bumped into this bloke and he never normally goes to this pub either and his name was Jack Temple and I said 'Hello, Jack. Nice to see you,' 'Yes, nice to see you.' 'What have you been up to?' and he said he'd just come back from the Antarctic. I said 'Oh that sounds very interesting.' He said 'Yeah, yeah', and telling me a little bit about it and I said I was looking for a change of career because I was in the aircraft industry at the time, and I said 'Give me the address', so he gave me the address of BAS and I sort of sent a letter off to them saying 'This is me and this is what I do, what you're doing sounds interesting', and they wrote a very nice letter back and said 'Yeah well we would like to speak to you and you could apply for any one of three posts really a meterologist or a diesel mechanic or an ionosphericist and we'll take it from there'. Well I knew what the first two were I knew what a meteorologist and a diesel mechanic were but I didn't have a clue what an ionosphericist was, well I say I didn't have a clue I had a guess so 'I'll apply for that one', so I applied for an ionosphericist. I went up to London and they offered me a job there and then so..

[0:02:30]Lee: For those of us who don't have a clue what ionospherics are..

Turton: Ionospherics is the study of the ionospheric layer, which was also known as the Heaviside layer at one time, which is the area of the upper atmosphere where radio waves are propagated and back in the days of early shortwave radio and medium wave radio, of course

you'd probably have noticed that you got better reception at night than you did during the day and that's because of the effects of the ionosphere, at lower level it attenuates the radio waves as they go up and at higher level it reflects them back down again, and so at night the attenuation layer which is driven by the sun effectively D-layer driven by the sun effectively disappears and so you get much better propagation of radio waves at night than during the day so all the kids like I was listening to Radio Luxembourg under their blankets at night so the parents wouldn't hear, benefited from the ionosphere and of course at the poles the ionosphere is particularly interesting because it's, because of solar terrestrial physics it's where the magnetic field curves in towards the earth and therefore it the solar wind and solar electrons which are emitted from the sun all the time they spiral down the field lines and into the lower layers of the ionosphere and it means the poles are a particularly interesting place to study them.

[0:03:59]Lee: Coming from Bristol you didn't know Horace Bachelor I presume?

Turton: No but I know he came from Keynsham spelt K-E-Y-N-S-H-A-M [laughter] yes Keynsham, Bristol yes.

[0:04:11]Lee: OK but you didn't know that then so what on earth made you feel you could apply to FIDS, or to BAS in your case, with this speciality?

Turton: Well my hobby ever since I can remember was playing with radios, and electronics was always my passion really, and right from school we used to build little radio receivers and illegal transmitters and so, yeah we did use the ionosphere to an extent. I ran for a short while a pirate radio station from the attic of my house and was picked up as far away as the other side of Bristol once, with only two records I seem to remember *Go Now* and *Little Red Rooster* I think. We used to take it in turns to be told the hit parade every week. But yeah it was a passion radios and me and my friends we used to go round to all the rubbish tips in the village, or in the villages in the area, and pick up all the old television sets and radio sets that people had thrown onto them, take them home, take them to bits, take all the bits out and remodel them to make our own radios and things, you learn a hell of a lot doing that. It was just a passion really of mine.

[0:05:28]Lee: Were these the lines you were spinning at the interview for BAS?

Turton: Ah I can't remember whether I spun that line but, no I can't remember it. Funnily enough, only last week I went to a dinner with some ionospheric friends we kept this dining club going for years called Titsop [phonetic], that's another story, but eh, and the bloke who interviewed me pulled out the interview notes for all of us that were there. There was nothing about rubbish tips in it but there were some interesting revelations shall we say at the interview. [laughter]

[0:06:02]Lee: Whatever it was you said it worked.

Turton: It worked, yes, yes. I knew it worked because after the interview they said 'Oh go along to the admin office and put your expenses in' or whatever it was for the trip up and I

did that and they said 'Oh you've been asked to go for a medical.' And the girl, I think it was Margaret Clark who was there at the time said, 'That means you've probably got the job!' [laughter] And so I went to have the medical which was again another experience I expect many people will tell you about the medicals they had with Surgeon Colonel Hayward and that was it really.

[0:06:39]Lee: Rigorous medical or not?

Turton: Erm, yes it was - I would say as a physical medical it wasn't terribly rigorous, as a psychological medical it probably was you know, they want, they ask you all sorts of questions which I suppose you have to give the right answer to, 'What are you like when you're dunk?' and all these sort of things. They're trying to find out whether you're the right sort of character to spend sort of two years locked up with people of a similar sort of insanity I suppose, but yeah physically they check all the normal things, but they're looking as much for someone who can adapt and live in that and be tolerant in that sort of environment, which is a difficult environment to be in - and it was tested.

[0:07:30]Lee: In the gap between being appointed and heading south what sort of training did you have to do?

Turton: Right, we obviously had to learn a little bit about the ionosphere, well quite a lot about the ionosphere really, as a scientific subject and so we went to the Radio Space Research Station, which was latterly the Appleton Laboratory at Slough, and there they had an ionosonde which was the same as the piece of equipment we were going to be working on down there, which even then in the 1970s was extremely old hat, it was all valves and bicycle chains and a fascinating piece of equipment actually, very well designed, so we learned how that worked, well part of our job was to maintain it, so we learnt how that worked and how to keep it running and also how to do sort of primary reduction of all the data it produced and so forth. The job on base was to take the records that the machine gave you which was basically a piece of 35mm film with a ??? [incomprehensible] ionogram on it and reduce that information and take off all the critical frequencies and heights of the different layers and put it, condense it, into a form, a tabular form which was then sent back to UK and then on into the world database, the world databases. So that was the job and that's what we did we trained to do that.

[0:08:58]Lee: And what happens to that information in the end, how is it useful to mankind?

Turton: How is it useful to mankind? Well how is any information useful to mankind? The data itself goes into the world data centres and is there for research purposes by whoever wishes to research a particular aspect of the ionosphere or any other, same as met data same as all magnetospheric data, solar data, it's all there and people who wish to conduct maybe look at the history and how its changed over the last 50 years. If you've got a continuous record of data over a long period of time these clever chaps in universities can deduce an awful lot from it.

[0:09:44]Lee: We saw that happen to meteorological data about 25 years ago when the first hint of global warming started to emerge.

Turton: Well yes and that's how we discovered the ozone hole by looking at records over a long period of time and that was of course done at BAS by Joe Farman and his team, and just by having that fantastic record of information, which is complete and continuous, and is still going on today – so very important.

[0:10:13]Lee: Did at that time, and we are talking about '74 '75 I'd guess..

Turton: Yeah, '74 I went down the first time.

[0:10:20]Lee: ..did you, before you went were you given rigorous health and safety training?

Turton: No, not in those days, no, we didn't go swinging off ropes and things in those days. No it wasn't, I think it more so now, we did our training for things like crevasse rescue and all that sort of thing on the boat on the way down, and that was sort of basically one of the GAs who was going down showing us the techniques and so in a way it wasn't necessary for people like myself because we were working on a static base, we weren't going out into the field and crossing massive glacier strewn parts of the inland, we were on a static base on an island and yes, we did travel, but we always travelled, hopefully in controlled conditions close to base.

[0:11:21]Lee: Nice weather in other words?

Turton: Nice weather yeah, yeah.

[0:11:25]Lee: The base you went to was Faraday but did you, were you told in advance where you were going to go?

Turton: Yes, but not until a week or two before we sailed, because obviously there was an ionospheric sounder at Faraday base, one at Halley and one on South Georgia and obviously there wasn't just me there was other guys going down as well at the same time and they didn't decide who went to which base until quite late in the process, and that was also done by evaluating you if you like.

[0:12:02]Lee: On the boat?

Turton: No no, this is before we'd got on the boat we knew which base we were going to but, they knew what sort of people they wanted to go to which sort of base really to do the job.

[0:12:13]Lee: Did the Antarctic live up to your expectations?

Turton: Absolutely, yeah, yeah. It exceeded them I think really in terms of the environment, what it was like it was just I mean I have always been an outdoor person but it was totally mindblowing just to wake up one morning in the Antarctic, after having, you left the Falklands, you go over the heavy seas and then one morning you wake up and you're there

and you're surrounded by these wonderful mountains and glaciers and ice and snow you've never seen the like of before. Quite incredible, yeah.

[0:12:45]Lee: Did you get, were you given much chance to go out and explore?

Turton: Depends what you mean by explore.

[0:12:50]Lee: Sledging trips and so on.

Turton: Well not really not from the base I was on because it wasn't a sledging base, it was a static base and it was just atmospheric sciences going on there - meteorology and ionospherics and physics, basically it wasn't a travelling base. Later when I went to Rothera then on other programmes then yes I did get out a bit more but not so much overland more by air but yeah certainly got around a lot.

[0:13:24]Lee: You didn't get very far though because you broke your leg, didn't you?

Turton: Yes. Well that was I broke my leg I think it was probably late February/March 1975 not long after I'd been there really I'd been down there for the summer and went skiing and managed to spectacularly break my leg by dropping the ski into a water channel which was covered in snow, it snowed over and of course it broke off and broke underneath the ski and the weight and as I was on the turn there was a rather nasty crunching sound from the bottom of my body and that was it. So yeah I broke my leg, the lads carried me into the base where we had an incredibly primitive X-ray machine which wasn't really working very well so actually being the electronics person on base I had to sort of fix it before I could x-ray my own leg [laughter], so after a bit of judicious rewiring I said 'Well I think you can take a picture now', so yeah we x-rayed the leg and decided it was not a very good break it was broken in two places, I say two places both bones the tibia and fibula, you can still see the lump, and they called up the boat because it was quite late in the season really and the boat was essentially heading up to South America I think for a crew's rest before they came down to a few more bases to do final relief and go home, so the crew weren't too impressed that they had to suddenly turn round from their trip to South America and pick me up but they did, and I got on the boat and the doctor on the boat looked at it and thought it didn't look quite right so he broke it again and stuck me in the surgery on the swing bed - there was a sort of gimballed bed in the surgery on the *Bransfield,* and we were crossing the Drake Passage and there was this horrendous storm and everything broke loose in the surgery, there were these bottles of oxygen on the floor in the surgery which managed to come free from their shackles and were rolling around the surgery floor, and that was a bit alarming because I thought 'Crikey, if the neck gets knocked off one of those its going to go off like a rocket', and so nobody would dare go in there so I was in there on my own with all this happening, and then the X-ray machine which was the ship's X-ray machine which was very cleverly placed on a bracket above the swingbed, fell off the wall onto me, so that broke my leg again so we had to, eventually when it calmed down and the doctor came in and sorted it all out. So that was the third time it got broken. Then I came all the way home and when I got back to the hospital the doctor took a look and he said 'Oh, that's not right, better break that again

and start from fresh' so they broke it again and it got broken 4 times altogether really and then got put in a proper plaster, oh no no a fifth time, there was 5 times because we went to the Falkland Islands and they took me to the hospital there and the Marine doctor looked at it and said 'No that's not right, better break it again' so he broke it the fourth time yeah and then they broke it the fifth time in Southmead Hospital in Bristol.

[0:17:02]Lee: Didn't you protest at any point in this process?

Turton: Well I suppose 'You've really got to break it again?' 'Oh yeah it won't set right' well you know you have to believe these guys they're the ones that know best aren't they?

[0:17:12]Lee: So you got back to England got it mended..

Turton: Got it mended yeah, it actually mended in time for me to fly down and meet the *Bransfield* in Montevideo round about Christmas '75 I suppose, just before Christmas '75.

[0:17:31]Lee: ..and they returned you to Faraday?

Turton: They returned me to Faraday.

[0:17:34]Lee: And then work could begin?

Turton: Work could begin I carried on I got back on the skis and tried them out, 'Yes they're OK now', and yep, work could begin of course I was a year late by then of course.

[0:17:48]Lee: So nobody had been doing the readings whilst you were absent?

Turton: Well yes I mean because the way the system works is that you take over from somebody who is already there, so you work two at a time, it's just that because I came out, in fact they put a lad in to replace me who wasn't an ionosphericist he was a physicist but he was a spare bod basically so he stood in my place while I was out so the chap who was going to stay anyway stayed so there were still two men in the team and I came in and carried on the programme, and it was fine, yes, OK .

[0:18:25]Lee: You were there for was it two winters?

Turton: Two winters.

[0:18:29]Lee: Collecting all this material, and there were other electronic developments you were involved with?

Turton: Well yeah I mean the base has a lot of electronic equipment on it, and notably a wind finding radar system which we were responsible for, which was what the meteorologists use to track a balloon, and this was a quite interesting piece of equipment really built by Plessey Radar on the Isle of Wight. As part of the training course I went over there to spend a fortnight finding out how that worked properly, and so yeah we that was always breaking down and we were always having to fix it, there were all sorts of problems with it really, most of them were because of the cold, seems absolutely ironical doesn't it but the system

wasn't designed to be worked in the Antarctic basically but they adapted the cabling, which had to go from the hut out to the tower where the actual radome was, had to have heating tapes all around it to keep the cables warm because otherwise it would have fractured in the cold with the slightest bit of movement, and the it was never very satisfactory and so we were always having a problem with cable failures, yeah. We kept it going.

[0:19:44]Lee: You said that you were the only electronics man on the base is that right?

Turton: Mmm at that time yeah.

[0:19:48]Lee: So everything else was your responsibility too.

Turton: Pretty much yeah when anything broke down I was the first person anyone would come to for it to be fixed. The only other guys who had, and then they weren't really electronics engineer was the radio operators, because they were operators they weren't really that electronically, and they were OK but, they weren't, they didn't have background really.

[0:20:09]Lee: So being the electronics guy on the base was far from being a cushy number then?

Turton: Yeah, it was all right when things were working. It also meant you were the butt end of all the problems yeah I mean the equipment I worked on, the ionosonde, was always known as *The Beast* [or *Beastie*]. It was called *The Beast* partly because it interfered with every other piece of equipment on base because it was a very high powered transmitter, a bit like when your mobile phone goes off it interferes with every radio that is going around doesn't it, this was the same sort of thing, and of course it did a sounding every quarter of an hour so nobody could listen to a record in peace because every time you put a record on every quarter of an hour this thing would come breaking through and ruin it, so that was the interesting challenge was finding out how to keep this machine out, so you learnt quite a lot about keeping radio frequency out of audio equipment yeah, so that was quite good fun doing something like that.

[0:21:07]Lee: There were one or two unhappy events at Faraday whilst you were there.

Turton: Yeah well.

[0:21:12]Lee: A couple of incidents which perhaps we ought to talk about even though they're not exactly happy moments.

Turton: Sure absolutely yeah yeah

[0:21:19]Lee: And there were three base members who were lost during '76 was it?

Turton: Yeah.

[0:21:23]Lee: An accident of some sort.

Turton: Yeah. They went off on a climbing expedition essentially.

[0:21:28]Lee: Do you remember who were they?

Turton: It was, there was the cook whose name was Mike, there was a meteorologist whose name was Geoff and there was a physicist whose name was Graham and they all, they were all very well qualified to do what they were gonna do, they were all good experienced mountaineers, not professional mountaineers but they were, they had all been at university mountain club, they had all done appropriate alpine type climbing and things so there was no worry about them going off and doing this sort of trip. And they set off in ideal conditions to do it, everything was perfect really and they went to climb the mountain, they did climb the mountain they got to the top and we spoke to them on the top and they began the descent and we never really heard from them again and looking at the meteorological records there was a lot of warming at that level, not long after they began the descent, and they got avalanched basically I mean that is the only conclusion that anyone can draw. We sent over, after, they missed their first radio sked and because we had regular schedules they missed the first one well that could be anything, they missed the second one and then you start to think and then you have to act, but because the weather had started to warm it was obviously, travel on the sea ice starts to become difficult, tricky, because you don't know when the wind is going to blow all the sea ice out anyhow but things weren't too bad still at low level so we despatched a party of another three guys which didn't leave many of us on base, three in fact, no not three, five, to go and have a look basically and they got to their base camp, the lads' base camp, and obviously no-one had been there, but they said that they started to go a bit further and there was this huge collapsed serracs and just a huge amount of avalanching obviously on the mountain and there was just no way that they could safely go any further and because it was warming and the sea ice was beginning to retreat, well we had to pull them back and say 'That's it, come back', otherwise we were six base members down so that was the safe, wise, safe choice, the right choice. Also when the lads first went missing we got support from the Argentines with an aircraft who flew down, picked up our base members from Rothera, and flew, Rothera it may have been Adelaide Island at the time yes it was Adelaide Island then, and they flew up back over the mountain, Mount Peary, and just to see what was going on really and again they reported severe avalanching there, so, that was it really, what can you do?

[0:25:07]Lee: Was this a research trip or a jolly?

Turton: No, no recreational trip.

[0:25:11]Lee: Recreational trip.

Turton: Complete recreation yeah.

[0:25:14]Lee: So it was just one of those things.

Turton: One of those things, and recreational trips were allowed and they were approved and if we were going to have recreational trip like that we'd notify headquarters at, well London I

think it was in those days before it moved to Cambridge, and they'd either be approved or not approved and if it was approved it was fine.

[0:25:40]Lee: What level of impact did that have back at base? The accident?

Turton: Well, obviously quite a big impact because there were, no its wrong to say there were good aspects to it, I mean the positive aspects out of it were that we all learned to cook because we had to, but it became quite competitive but no, base dynamics were quite difficult for a while I mean, nobody apportioned any blame to anybody, but there were obviously feelings going round that maybe somebody could have done something better than they did at the time and that, some of those things left a nasty atmosphere, I won't name names or anything like that but it was hard, and one of the things because it was the middle of the winter it was still quite a long time before relief began, and the base were more aggrieved by the fact that it seemed that when the ships came back down they didn't give us priority, they went wherever, we felt that we needed relief now not waiting for them to go off to other bases first and there was a bit of bad feeling about that towards the organisation I think. But no, we just had to muscle down and get on with it people had tears and lots of talk obviously about things but we still functioned as a base and we still kept the science going, we still had our job to do and we got on with it really.

[0:27:26]Lee: There was no attempt to find them I suppose?

Turton: No, no.

[0:27:30]Lee: No I was, sorry..

Turton: No, no attempt to find them because the conditions were so bad it wasn't, it wasn't, you're putting a lot of other people's lives at risk it's not the sensible thing to do really.

[0:27:42]Lee: Was there any kind of ceremony back at..?

Turton: Yes there, well the ceremony happened when the *Bransfield* came down later in the season, and they brought down a wooden cross which Big Al Smith had made, and we all went over and erected it, which was nice that we all wanted to do that the whole base did that, except one member who preferred not to and I think he'd rather would stay on base as a firewatcher as someone on base, he didn't come across but everybody else did and that was a very solemn and was quite hard because it was then final, definite and just being at that spot because we were at the place where they would have set off from that was quite hard but, you know.

[0:28:35]Lee: You had to strike their base camp I guess and bring it all back.

Turton: Erm no that was just left.

[0:28:41]Lee: Was it?

Turton: Yeah. No because that was further up in the mountain I think that was just all abandoned to its fate. We didn't even go and try, I mean the original party that went up there, our search party, obviously couldn't, didn't have the capacity to bring back, basically what was going to be rubbish that they had to carry all the way back to base, and they had to get back, that was the important to get them back safely.

[0:29:11]Lee: Whilst we are on this subject there's later on in your time, it was 1979-80 season, there was another fatality.

Turton: Yeah, yeah.

[0:29:21]Lee: Do you want to tell me about that please?

Turton: Well that was quite hard. That was when I was doing the aero magnetic programme and we were flying the survey lines from Rothera. We went out and we went down to Druznaya, which was the Russian base, and then on to Halley and it was when we got to Halley that the aircraft did a low pass over the base and, it was customary thing for when an aircraft turned up at the base was to do what we called 'beat up the base' in other words fly low and fly around and do a bit of this and then land, and it was just the pilots having a bit of fun with the planes and showing off to the base a bit and the base enjoyed it to see the aeroplanes doing this sort of thing. So we did a low pass over the base. Now Halley is a subterranean base but their caboose is on top on the surface, and we did a low pass over the caboose came round to do another one but in the meantime a couple of lads had jumped on top of the caboose and, well to this day no-one really knows exactly what happened but the plane came over too low basically, or didn't take into account the fact that there were two people on top of the caboose at the time, that's how close it was and one lad's neck got broken basically by the aircraft ski.

[0:31:03]Lee: This was Trevor Miles Mosely?

Turton: Yep and, yes that was hard, that was very hard, not a nice way to arrive at a base.

[0:31:15]Lee: No.

Turton: And erm..

[0:31:17]Lee: So you were flying in at that point to the base.

Turton: Yeah, yep. And well no I, you can't really apportion blame to anybody for that, I mean there's lots of, everybody's got a lot of feelings about really what happened there but it's not a really good place to, I don't think it is a good idea to say now what my particular feelings were about what happened there.

[0:31:48]Lee: OK. There would have been some sort of enquiry afterwards.

Turton: There was yes.

[0:31:53]Lee: Did you have to go to it?

Turton: No and I was quite surprised at that.

[0:31:57]Lee: Hmm.

Turton: It was yeah I don't know who was interviewed apart from the pilot. I know I wasn't.

[0:32:09]Lee: Was anybody sacked?

Turton: No.

[0:32:15]Lee: Were you at the base then for some time?

Turton: We were there for another good couple of weeks.

[0:32:20]Lee: So again you were able to witness how the base reacted to that . . tragedy?

Turton: Yeah. We were there and you know we were there for the committal, which was done over the ice edge and into the sea and that was very, very difficult, very difficult and we flew away again and, it was, yeah, it was very hard, that was very hard, and it wasn't very comfortable flying in the aircraft after that, mainly because I was concerned about the psychological state of the pilot.

[0:33:05]Lee: Nevertheless it says here 'I view my time with BAS as some of the best of my life'.

Turton: Absolutely. Yeah, I mean [pause], it's a bit like you ask any ex-serviceman what's the best time of their life, they've been out to war and they've witnessed horrific things it's still, to them, some of the best times of their life.

[0:33:32]Lee: It's the most vital part of their life. Was the Antarctic the most vital?

Turton: Vital?

[0:33:38]Lee: In terms of vitality?

Turton: Yes I think so, yeah. It's certainly the most stimulating in many ways really, physically stimulating, emotionally stimulating, yeah.

[0:33:58]Lee: Let's move onto..

Turton: Happier times?

[0:34:00]Lee: Yes, let's move onto other matters. Thank you for spending some time.

Turton: No that's OK no.

[0:34:04]Lee: It's good to mark these things really.

Turton: Mmm.

[0:34:06]Lee: Whilst you were with BAS there was a heck of a revolution in I.T. wasn't there really?

Turton: Yeah.

[0:34:13]Lee: I mean we seem to have leapt forward a huge amount in that time.

Turton: Yeah.

[0:34:16]Lee: And you were involved in developing what you call the infamous BAS Micro

Turton: Yeah it was infamous.

[0:34:21]Lee: Which I'd never heard of what was [laughter] what on earth is, was or can be a BAS Micro?

Turton: The BAS Micro was great. Of course computing, when I came back from the Antarctic microprocessors really had only just sort of started to make an impact really and become available to people and BAS had got hold of and Dick Kressman, who was the electronics engineer at the time there when it moved to Cambridge, had got basically a microprocessor home kit which he built up and played with it and made it do various things which was very clever and very laudable and it worked well for what was wanted at the time, and I don't know whether you remember Acorn Computers who built the famous BBC Micro well they had at that time this was pre-BBC Micro produced something called the Acorn Atom I think it was called and it was a card based system with a processor on it and we bought one or two of these to play with, the idea was to use them mainly for automatic weather stations or base weather stations and things and so we developed this sort of data logging system based around the Acorn, and that worked OK and then we decided to develop our own which was a bit more bespoke, a bit more suitable to what we wanted to do so we built this purpose built data logger microcomputer really which was a sort of rack based system with a word processor on it and a spreadsheet on it and all the different scientists were looking at it 'This is good, what can we do with this?' and so we started a production line essentially making these things.

[0:36:30]Lee: Within BAS?

Lee: Within BAS, yeah, we were making these things. At that time I was head of the Electronics Laboratory then I'd taken over from Dick who went on to look just after the Advanced Ionospherics Sounder System so I'd started to run the electronics lab and we started producing these things. I don't know how many were produced probably about fifty of the damn things and they were every division within BAS had you know 4 or 5 BAS Micros and then they started going off to other institutes that were associated with BAS you know other NERC institutes were having the BAS Micro, which was wonderful and we made quite a lot of them.

[0:37:12]Lee: Was this a source of income for BAS?

Turton: No, no because it was all within the group really it wasn't a source of income as such, things weren't, well I don't know actually they may have sold them to other institutes for hard cash I don't know but within BAS it was..

[0:37:28]Lee: The trouble with developing or inventing and developing something is that you then have to successfully defend it and mend it don't you?

Turton: Well that's true yeah but they didn't go wrong so we had nothing [laughter]..

[0:37:37]Lee: Oh it didn't?

Turton: They were very reliable and, yeah it was a good piece of equipment you know it was very primitive by today's standards but it did do a very useful job. It allowed scientists to collect data, log it on equipment and also do their word processing and whatever.

[0:37:55]Lee: How big were they in 1980 was it '80 or thereabouts?

Turton: Oh yeah, it would have been, well, 20 inches wide, about 6 inches tall and about 15 no well about 12 inches deep you know. Not too big..

[0:38:11]Lee: No?

Turton: ..really, but then of course you'd have the terminal which went with it, because it wasn't like a Windows operating system it was all text based, we ran a programme called *Flex* which was an operating system, a disc operating system really.

[0:38:29]Lee: Were there some people who were disbelievers?

Turton: Well there's always disbelievers aren't there, there's always Luddites [laughter] but most people took to it I think. I think the scientific community there at BAS realised that it could save them an awful lot of work, and make their job easier, and yeah, so we had them on board the ship for the data logging applications on the Offshore Biological Programme stuff and we converted it, I converted it, for the airborne data logging, so it became quite a multipurpose, very flexible platform.

[0:39:10]Lee: Were they usurped in the end?

Turton: Oh yes they were usurped, they were usurped actually after I'd left BAS, in 1985 I left BAS, and I guess we may have made the last one by then but they were still, they were certainly still around and being used, but of course then the modern pc was beginning to make its impact even though it had a really awful operating system. I mean the early pcs, the Microsoft/IBM pcs, with Microsoft disc operating system, DOS as it was known, were actually I think far behind the BAS Micro at the time, yeah until Windows operating system came out they were far behind.

[0:39:55]Lee: There was another piece of technology you were responsible for developing as well which was this Aeromag engineer, no you were an Aeromag engineer.

Turton: I was the Aeromag engineer yeah.

[0:40:07]Lee: Can you tell me about that please?

Turton: Well when I came back from the Antarctic when I'd finished my term as ionosphericist I came back and, because of my history was in the aircraft industry I was quite keen to go, to operate with the aircraft systems and I applied for a job as an engineer on the Aeromag programme and there was a vacancy and that was just to sort of operate the equipment, fly, operate it and modify it to standard, and so, yeah I looked at it and decided that the data logging system they had in it was actually rubbish basically it was difficult to use and you never knew whether you'd got the data or not until you got back, and so that was a bit hit and miss really you could spend a whole season flying and not know whether you'd got any data, so you had no way of checking whether the equipment worked so, and that was on magnetic tape it was recorded, there was no way reading it back on base. So I came up with a modified BAS Micro type system really, it was a complete airborne data logging system and they could plug all the magnetometers and anything else into it that you wanted, all the navigation data from the aircraft would also be plugged into it so you had a complete record of where you'd been and what all the magnetic profiles were and you could also read it back after a run so you'd make sure you had the data you expected to have.

[0:41:38]Lee: Did that mean you had to be in the plane with this machine?

Turton: Well I did for the first season because that was sensible, well and the second season would have been but, yeah certainly for the first season I went out and test and make sure it would work in the field properly as expected, of course you know we had to, electronics and the atmosphere in the Antarctic is a bit of a problem because of the temperature there, and so you have to be a bit canny about how you do your electronics down there, so I wanted to make sure, although we tested it in the fridge back here, I wanted to make sure it worked.

[0:42:17]Lee: You stuck it in a domestic fridge?

Turton: Well no not a domestic fridge but BAS had a big, a huge big walk in freezer which they used to keep the ice core samples and things in so we used to set the equipment up in there, go in there make sure it all ran properly. But even so there's nothing like sticking it in the aircraft under these conditions and running it and operating it and it was fine the first season we got a good amount of data. The second season I went down to do it which was, I went down first in 1979-80, and then I went down in '81-'82 season, and in '82, or yeah it would have been early '82 what happened is the aircraft got blown over by some freak winds basically on the airstrip, it tore out the stays and everything and ended up on her back with her legs in the air so that was the end of the flying season, there wasn't going to be a flying season. I hadn't even got to base I was still stuck at the transit place at Damoy waiting to be picked up by the airplane that was lying on her back, so we were stuck there me and a couple of other chaps so we eventually got fished out by the *John Biscoe,* who was going to go on the Offshore Biologic Programme so they thought 'Well we'll make use of Jim because he's

an electronics bloke, we can do an extra hand on the ship with all the OBP equipment', which again was BAS Micro based, so I went and helped on that for 3 or 4 weeks.

[0:43:50]Lee: Just elaborate on OBP for me?

Turton: OBP?

[0:43:53]Lee: Mm.

Turton: Offshore Biologic Programme.

[0:43:55]Lee: Oh right, OK.

Turton: Yeah, that was basically examining krill swarms and, I don't know ask a biologist what they did [laughter], they were trawling and looking for krill and we were doing CMC temperature depth measurements with the probe which was lowered off the ship, our equipment was recording that, so I helped on that helped the guys who were already doing it, it just meant, because it was quite long shifts, quite difficult shifts, so an extra hand actually helps the ship ???[incomprehensible] .

[0:44:26]Lee: How was inter-disciplinary communication because, it's a very specialist world you use words I don't fully appreciate and ..

Turton: I'm sorry about that.

[0:44:35]Lee: ..No no you're perfectly entitled to, but the biologists would also be using lots of words you don't appreciate.

Turton: Absolutely yes.

[0:44:40]Lee: When the, could nation speak peace unto nation or how do you get over those?

Turton: Well I think the answer is we educated each other in the bar.

[0:44:48]Lee: In the bar? [laugher]

Turton: Probably, yes. Yeah I mean, I suppose you pick up each other's jargon you say 'What's that?' I mean Fids have a completely different jargon to the rest of mankind anyway.

[0:45:09]Lee: [laugher] Such as?

Turton: Well, like 'Pass the splode' well who knows what a splode is? Meals are known as scradge and things like this, so it's a language which even the word Fids itself not many people 'What's a Fid?' I suppose it's like all walks of life there's cliques you probably find the same in the services there's words for things that Joe Public doesn't know but it makes you, I guess it gives you an identity in a way doesn't it, having your own language?

[0:45:43]Lee: Yes a certain amount of power.

Turton: Yeah, a certain amount of power, yeah, but even amongst yourselves.

[0:45:51]Lee: What we are talking about here though is not just the occasional word, which you can look up in a Fid dictionary.

Turton: Yeah.

[0:45:56]Lee: You're talking about different ways of thinking about life aren't we?

Turton: Oh absolutely yeah, yeah.

[0:46:00]Lee: So were there, did you come across any problems in crossing those disciplines?

Turton: I don't remember any is the answer, I don't remember any. No I don't think so. I mean I suppose the only thing that might be difficult is people have a different sense of urgency for different problems, one man's urgency is another man's 'Oh that will wait till tomorrow', but no I don't not really, it's a wonderful working atmosphere with Fids, I think it is.

[0:46:34]Lee: I mean in this modern day and age if anything goes wrong with the computer its urgent.

Turton: Well yes because its your lifeline each day isn't it?

[0:46:39]Lee: In those days it was less so I guess.

Turton: Yeah less so yeah but, well I don't know actually that's probably not true.

[0:46:48]Lee: What if people's ???[incomprehensible] depend upon it.

Turton: Because you know if a programme on our ship is being held up because of a computer fault because the programme can't operate without the computer then yes it is urgent, but all urgency is relative isn't it maybe you can go off and do something else in that time while the ship's, while the equipment's being fixed by the technician. Yeah, some things go wrong obviously but not always.

[0:47:19]Lee: There was a change of culture also when NERC swallowed BAS for want of a better phrase.

Turton: Yeah, yeah.

[0:47:28]Lee: I don't want to put words into your mouth but I think you have some views on this.

Turton: Well I do really because I think it destroyed the BAS that I knew and loved if you know what I mean. I suppose it would be unfair for me to say that it is better or worse as an organisation because you don't know what would have happened if it hadn't done, maybe BAS would have fallen by the wayside because it just didn't have the big support structure,

but I certainly found, and I resented and I think I'm probably not the only one who resented the fact that a decision that I was making on purely technical grounds would be overruled by someone who was making the decision on purely financial grounds, so I find that a bit irritating. It's the way of the world these days I'm afraid but it - when you want to buy a piece of equipment and you have to write a specification for this piece of equipment and, say for instance its an oscilloscope, you want to buy this oscilloscope to do this particular job and so you write the specification and that goes out to 3 or 4 manufacturers of oscilloscopes and they all put in their bid and then the finance officer says 'Oh yes, well that one there they all meet the spec, but that one's the cheapest so we buy that one'. That's fine, but as a technical engineer you look at it and you think 'Oh yes they all meet the spec, this one does that that's fine, but this one which is maybe the second most expensive, actually that will do what I want to do next year and I won't have to buy another one for next year because I can buy that one now', and the finance officer says 'No because that one meets the spec that you wrote', and you think what a waste of money because next year you've got to go out and buy the other one now, and so you that sort of flexibility I found didn't exist and I found it quite frustrating that..

[0:49:37]Lee: Was that actually at the time when NERC took over or was it already creeping into BAS before that? Because the other threshold was when Fuchs stepped down and Dick Laws took over.

Turton: Oh well that happened just as I joined BAS. When I joined BAS Dick Laws had just become director. I don't know is the answer, there's all sorts of thresholds throughout the history of any organisation aren't there? It certainly became more and more apparent at Cambridge. When I came back from down south the first time BAS had only just moved to Cambridge and I think its when BAS became a solid organisation which was all together under one roof instead of dispersed around various universities and research institutes around the country.

[0:50:36]Lee: The little kingdoms became an empire didn't they?

Turton: They did yeah and I'm not saying that's a bad thing, I think that was probably quite a good thing in some ways, but I think that's when the beginning of the rot set in and of course NERC which is a big administrative body, came in and little things like for instance people would come in to work because the traditional Fid, the traditional Antarctic survey employee, would put the job first and they'd work all hours of the day to get it done because it was a) it was their ethos to do that and b) it was their passion, they enjoyed it, they loved it and you start getting people from a higher administrative structure and I won't mention any names who start saying 'Hang on a minute I'm seeing people who are leaving at half past four', but these guys have been there since 7 in the morning and they've done what they've got to do, and so they start complaining about people going early or not being there at a certain time even though these people on average were putting in a lot of time, its their passion, and so 'Oh well we'll have a flexitime system then', so flexitime system comes in where everybody only does 35 hours a week, less work gets done and trust is gone.

[0:52:11]Lee: Hmm.

Turton: You know, trust is gone, and little things like that erode, gradually erode the organisation, I think so.

[0:52:19]Lee: How fed up did they make you?

Turton: Well it made me fed up enough to leave in the end, yeah. I reluctantly left BAS, I couldn't actually see and again because of the I suppose because of the civil service rules and regulations, I couldn't see a clear career structure for me there beyond where I got, and I thought 'I've been here before' I was there that was when I was at Rolls Royce I can see I'm not gonna go much further than this I can see what's going to happen in the future and I'm going to spend the next 40 years pushing a bit of paper around supporting an aircraft project, I don't want to do that so I looked for another job and got to BAS and I could see that happening at BAS and I wasn't actually sure it where it was going to go from there on and I was beginning to get frustrated by this system that I wasn't wholly happy with, this civil service system and that was it so I looked round and went my own way then.

[0:53:22]Lee: Did you find the promised land?

Turton: Yeah, I'm there now.

[0:53:27]Lee: Tell me about it.

Turton: I went into a company in Cambridge initially just to get a bit of a feel for the commercial world to find out what it was like out there in the real world, in industry, to see what works and what doesn't and so I joined a company called Cambridge Medical Equipments to design a new type of ECG machine as an engineer, an electronics engineer, and that was fun, we produced a good product I was there for about 18 months I think, but I found out how not to run a business [laughter]. I found out exactly how not to run a business, and the way not to run a business is to start a business, think you're an entrepreneur, spend all your money on BMWs [laughs] without a product. So that's not the way to run a business so anyhow that was one of the things I found out but then I started on my own manufacturing parts for meteorological equipment for a company in Cambridge, Vaisala, which is also, I mean I was lucky in a way because there was another Fid, ex-Fid, who worked for them and he was able to sort of feed me a bit of work, and then we got a contract to do a job for BAS which was do all the data monitoring for the structure of the new Halley, what was the new Halley 5, old now of course its gone, but Halley 5 station and that involved putting a lot of sensors around the base to measure its movement and performance really, load cells under the legs and strain gauges on the cables and all this sort of thing to see how the building performed as a building, and that was a very good contract to get from BAS and I'm sure we won it because me and my partner at the time had both worked for BAS and we both knew people there and I'm sure we got it on merits rather than on old boy network.

[0:55:57]Lee: Were you down at Halley doing this work yourself?

Turton: No, I didn't go to Halley to do it, built all the equipment here, manufactured it and delivered it to BAS and they installed it with their own people to our instructions with a huge number of manuals, but it was a very good contract and it that sort of sealed me then and said 'Right, now you can actually make it on your own', and my partner he decided to go back into paid employment and I carried on my own.

[0:56:36]Lee: The other virus that is sweeping through organisations these days is political correctness.

Turton: Yes.

[0:56:41]Lee: I wonder whether you feel that BAS had had to cope with all that?

Turton: Well I think it did, undoubtedly.

[0:56:46]Lee: There was the decision to send women south for a start.

Turton: Exactly, yeah. You have to move with the times and, you, I don't think that's wrong I think women, there's nothing wrong with women as scientists at all. I don't know what the base dynamics would be like now, I dread to think what they would be like now in isolation. I think it would be very hard and quite, it could be quite tense, certainly if there was two-year periods, I don't sure if they do two-year periods now I think they do 18 month periods but the bases are different places too, the bases are all much more luxurious they are more like hotels than they are the bases that we knew which were basically huts with a toilet bucket at one end of the hut, so it's, the whole thing's changed and technology has taken over and they are much more suitable for mixed clientele shall we say, but no I mean in terms of science and all that sort of stuff no I don't think so, no problem having women on bases. I don't see that as being doing it for political correctness. I see a lot of the green issues as being for political correctness.

[0:58:21]Lee: How do you mean?

Turton: Well silly things like I mean, like not burying your rubbish on site. For instance, you take a place like Halley if you had a load of tins and whatever from the base food store, stick it in a big hole in the snow and, I don't know 300, 3,000 years later it pops out the bottom, and I can't see it can cause a lot of harm to anybody, but, and the same with faeces and all this sort of thing but nowadays you ship it out and it adds extra tonnage to the ship which is being which is taking it out which means it burns more oil, and then you dump it in somebody else's backyard [laughter], and I think personally I think that's a sort of false, yeah it's being seen to be green but I think it's a false greenness I think again that's for political reasons I think rather than just plain common sense.

[0:59:21]Lee: Well its been part of the Treaty I guess isn't it?

Turton: Yes, yes it is.

[0:59:25]Lee: And you can't opt out.

Turton: No, you can't, that's quite right but treaties are generally put together by committees, I think you have to, it's a question of one rule for one, one for all but they take away the element of common sense really, I think so anyway.

[0:59:50]Lee: What made you laugh down there? Were there funny, ridiculous incidents?

Turton: Well I mean lots of things make you laugh, it's the funny things people do isn't it that made me laugh. There was one chap who was determined to find a use for a 45 gallon oil drum [laughter], and it has always been one of my ambitions as well actually to write a book about the uses you can put a 45 gallon oil drum to but obviously down there they were plentiful because of all the aircraft fuel, all fuel used to come in oil drums, so we had these oil drums and this guy decided one day that he reckoned that he could shatter an iceberg with a 45 gallon oil drum so 'How's that gonna work, son?' 'All you've got to do is get the resonant frequency of the iceberg and it will shake itself to death'. And so he built what we called the 'Doom Machine' on base, and the 'Doom Machine' was a 45 gallon oil drum with a piston in it, which was just a piece of wood, and at the bottom of the drum, the front of it was open like a cannon and at the end of it was a crank driven by an electric motor, and the idea was to get this piston going in and out to create a pressure wave at the frequency which was the resonant frequency of an iceberg. So we all, he set this thing up and waited for an unsuspecting iceberg to drift past the end of the jetty on the base, and we all went down with our cans of beer and gins and tonics and snacks and nibbles and said 'Right set off the 'Doom Machine'. He set this 'Doom Machine' off, played with the speed, played with everything, and we watched this iceberg go slowly past without a single effect on it and we all went into base and carried on the drinking session. Little things like that were just such fun, such fun [laughter]. Yes fun with the 'Doom Machine'. I think he gave up after that and tried to make a desalinator out of oil drums but that didn't work either.

[1:01:55]Lee: Has he cracked the oil drum yet?

Turton: No I don't think so. I haven't been in touch with him since we left so I don't know - maybe he's still working on it.

[0:02:04]Lee: It's been lovely Jim, thank you very much indeed.

Turton: You're welcome, thank you.

Possible Extracts:

- Broken leg – 5 times! [0:13:24]
- Loss of 3 base members from Base F [0:21:19]
- Impact of loss on base [0:25:40]
- Memorial ceremony [0:27:42]
- Another fatality – at Halley [0:29:11]
- The BAS Micro [0:34:21]
- The Aeromag programme [0:39:55]
- Reflections on changes at BAS [0:47:19]
- Political correctness at BAS [0:56:50]
- Funny incidents – the 'Doom Machine' [0:59:50]