

DAVID PETRIE

Edited transcript of a recording of David Petrie, interviewed by Chris Eldon Lee on 18th June 2011. Transcribed by Andy Smith, 5th January 2012.

Track 1 [0:00:01] Chris Eldon Lee: *This is David Petrie, recorded by Chris Eldon Lee, on the 18th of June 2011. David Petrie.*

Track 1 [0:00:10] David Petrie: It is David, and I have a middle name Lyall, Petrie, and I was born in Edinburgh on the 3rd of October 1940, at home.

Track 1 [0:00:23] Chris Eldon Lee: *And what years were you South and where were you based?*

Track 1 [0:00:27] David Petrie: I went South, to Halley Bay, arriving there on January 1963, and left two years later. Then I was with SPRI for a while, 5 years. I went back South 1966/67. With SPRI went to McMurdo '69/'70 and then I was in the Falklands for three years (in Stanley) '70 to '73. Later on the same year, '73 to '74 I was back at Adelaide. That was when I left FIDS (BAS).

Track 1 [0:01:14] Chris Eldon Lee: *Tell me about your childhood, your background, where you were educated, and that kind of thing.*

Track 1 [0:01:19] David Petrie: Well I have an unusual background at home in that my father worked in a large cemetery in Edinburgh. He was a foreman there and although I was not born in the cemetery, we moved there when I was six months old and we had a house with the job. So I lived in the town almost, but in the country too because it was lots of trees and shrubs and wildlife. So I went to a local primary school called Flora Stevenson's. When I was nine my dad got a job as a superintendent, a promoted job really, and that came with a house too, in another large old cemetery in Edinburgh again. So I was surrounded by tenements and shops but in the country, which I loved because we had a dog and I used to play around in the cemetery. I learned to ride a bicycle and resurrected my dad's old motorbike which he had stored over the war. I used to ride that round the cemetery; I had great fun.

Track 1 [0:02:35] Chris Eldon Lee: *Did you have an academic leaning?*

Track 1 [0:02:36] David Petrie: Not really, no. After I had left the second secondary school, which was Preston Street in Edinburgh, I sat two entrance exams for two schools in Edinburgh. One was the Royal High and the other was another school which was founded way back in the 1600s by the Exchequer of King ... I forget which king. He founded a school called George Heriot's. His name was George Heriot. They had assisted places for academically gifted pupils. My parents really did not have very much money and I was fortunate to get a bursary there. I was lazy, basically. I could do things quite well. I passed exams without too much trouble. But then when things got a bit harder, I could not be bothered working. Some of the stuff I had to repeat, so I ended up doing the same year again to try and catch up. I was getting fed up with school. I had always been interesting in engineering, basically. My dad had always been interested in motorbikes and building radios and things. I wanted

to be like him. So, as I said, I rebuilt his old motorbike which had been abandoned, and got it going. I also got interested in electronic stuff, which in those days was valves, not integrated circuits and transistors.

Track 1 [0:04:32] Chris Eldon Lee: *You managed to arrange an apprenticeship yourself?*

Track 1 [0:04:35] David Petrie: Well, yes. Because of that attitude and because I was fed up with school and I wanted to leave, it was suggested that I should try to get an apprenticeship in Ferrantis which was the major electronics employer in Edinburgh. They did mostly military contracts. I got accepted there; it was late entrance. Normally they took you in in September but I got in in January. I learned a lot of good technical skills which opened the world for me, basically.

Track 2 [0:05:17] Chris Eldon Lee: *Well quite a big one, in fact. What was your first inkling that a place called the Antarctic might actually exist?*

Track 2 [0:05:23] David Petrie: Well really because: it was a funny ... It was the exception to the rule. My parents were very religious and I had a very religiously narrow upbringing. I was not allowed to go to the pictures or play cards, or go near booze or fags or anything like that. I was not even allowed to normally go to the school-sponsored trip to see the theatre or a film, but when *Scott of the Antarctic* came out, I was allowed to go and see that.

Track 2 [0:05:59] Chris Eldon Lee: *Do you know why?*

Track 2 [0:06:01] David Petrie: I think basically because it something that was not made up or contrived. It was, as they saw it, a documentary of what had really happened. Besides which, my dad had always been interested in the Arctic and had told me he fancied going to the Arctic. So the Antarctic was the same kind of thing; cold with snow and ice, except without the same wildlife. That was when I first really came across the Antarctic.

Track 2 [0:06:40] Chris Eldon Lee: *What was it about that film that captured your imagination?*

Track 2 [0:06:43] David Petrie: I don't know. I think it was the hardship and the stoicism, of putting up with things, like my parents had to put up with a lot of things, with being poor. They had come from poor backgrounds as well. They had always had to watch every penny and make do with what they could. I think that probably struck a chord.

Track 2 [0:07:15] Chris Eldon Lee: *Was this some kind of Presbyterian ethos creeping in, do you think?*

Track 2 [0:07:21] David Petrie: Possibly, yes, because I have carried that kind of attitude, I suppose, throughout the rest of my life. You make do with what you have got, and once you got to the Antarctic, of course, you had to, because you are stuck with what you had to make use of. So you worked your way round problems with what you had.

Track 2 [0:07:45] Chris Eldon Lee: *So did you gradually develop an ambition to go South or was it more a case of something popping up?*

Track 2 [0:07:53] David Petrie: It was really something popping up because by the time my apprenticeship was due to finish, there was a lot of dissatisfaction amongst the apprentices with the pay and conditions in Ferrantis at that time. Lots of people were looking for alternative places to go and work. I had not considered that you could work in the Antarctic as such, so I was looking at the Arctic and Canada. I sent for brochures about working in Canada. Then I saw this advert in the *Daily Express* for ionospheric technicians. I thought 'That sounds interesting.' I did not know what an ionospheric technician was but it did ask for electronics experience. You get £500 a year, which seemed like a fortune, especially as you were getting your food and your clothing. So I applied and had a interview down at Millbank. The only interviewer I seem to remember was Bill Sloman. I do not remember anybody else.

Track 2 [0:09:08] Chris Eldon Lee: *Do you remember it being rigorous or more of a gentleman's type of event?*

Track 2 [0:09:13] David Petrie: Very gentle I felt, yes. The thing that really struck me, not so much about the interview, was that I had travelled down by train. I did not know that I could claim for expenses or anything, so I had got the cheapest deal and I had slept on a seat. 'Why didn't come on the sleeper?' 'Crikey, I never knew you could do that kind of thing.' No, it seemed very laid back to me.

Track 3 [0:09:51] Chris Eldon Lee: *So how did you get to grips with ionospherics, and did you have to do that off your own bat?*

Track 3 [0:09:55] David Petrie: Well no, because BAS had a ... The ionospheric research work was based at the Radio Research Station (as it was called in those days) at Ditton Park, just outside Slough. It was all part of a larger area where there was the Admiralty Compass Observatory as well; a separate organisation but still running under the same kind of Civil Service scientific establishment rules. So there were three of us. There was another chap – I think he was called Clive Slater – who was going to Argentine Islands because they had a 'beastie' as well. And there was myself and Chris Jefferies, and we were all told to report to the Radio Research Station and somebody would meet us there.

Track 3 [0:10:54] David Petrie: There was a really good guy called Don Madden. I think he was partly Egyptian – lovely chap, very politely spoken – and very good on the technical side. He introduced us to all the technology involved in this beastie (which we did not know was a beastie at that time). It was called an ionosonde. It was only later we discovered that we were regarded as 'beastiemens'. [laughs] Anyway he took us through all the theory of the operation, and the practicalities because it was an ancient ... I mean it had been designed before the war really, by one of the guys at the Radio Research Station. It had all sorts of strange mechanical problems as well as electronic problems. So we got a thorough grounding on how to fix all these things, plus all the photographic processing, because it was all recorded on film. Then we had to learn how to actually analyse the data from that. The output came as basically squiggly lines and you had to measure various parameters on these, and enter them

into a table. Then you had to do more sums on those, taking columns of data, and submit reports every month. The radio officer on base would transmit it back to Slough where it all went into the World Data Centre.

Track 3 [0:12:52] Chris Eldon Lee: *So you were sending more signals back directly to Slough?*

Track 3 [0:12:55] David Petrie: Yes. It was a sort of abbreviated summary of the month's recordings. All the paper data was kept. There were huge big charts, A3 size, that we had to fill in full of numbers derived from measuring this stuff.

Track 3 [0:13:17] Chris Eldon Lee: *You suggested that things went wrong from time to time?*

Track 3 [0:13:20] David Petrie: Och, yes. Well it was so primitive. It ran on bicycle chains, some of the mechanics of it, because it switched between different frequency bands and each band had to be set up separately. Not like modern electronics where you can cover a huge radio frequency band in one piece of integrated circuitry. In those days there were very small bands that you could transmit on, and you had to switch between different mechanical bits to select the different parts of the circuit.

Track 3 [0:14:02] Chris Eldon Lee: *Was this like gears on a bicycle?*

Track 3 [0:14:03] David Petrie: No, it was a big rotating unit and lots of sliding contacts. And within this rotating unit there were connections to other parts on this big – it was a steel framed unit about 4ft 6" square (cube rather). Lots of bits and then there was the display itself, which was a photographic ... It was a cathode ray tube and film went past it at a fixed speed. The way it was displayed on the tube was transmitted onto the film, picked up on the film as wavy lines, effectively.

Track 4 [0:14:52] Chris Eldon Lee: *So that the most common fault would have been the chains collapsing, or ...?*

Track 4 [0:14:57] David Petrie: The contacts were a continual problem, between this rotating switching mechanism, plus keeping everything synchronised between the film and the frequency scan that you were on. It would run fine for a while, and then something would go wrong and you would be frantically trying to ...

Track 4 [0:15:22] Chris Eldon Lee: *And the training you had was sufficient for you to be able to fix things in the field?*

Track 4 [0:15:27] David Petrie: Yes, that is right, because you had to understand what the background electronics was, how it was operating and so on. If something went wrong, to diagnose what part of the circuit was causing the problem.

Track 4 [0:15:41] Chris Eldon Lee: *If I am right, it was a chap called Roy Bailey who designed the beastie. Does that name ring a bell?*

Track 4 [0:15:47] David Petrie: I think it was that, along with a chap called Wilkins. It was all about the same sort of time as Watson-Watt was doing the early radar experiments before the war. They were all involved in that kind of thing, yes.

Track 4 [0:16:13] Chris Eldon Lee: *Did you meet Roy Bailey?*

Track 4 [0:16:14] David Petrie: No.

Track 4 [0:16:15] Chris Eldon Lee: *No? OK. What was it like going South?*

Track 4 [0:16:18] David Petrie: It was fantastic. I do not think I would ever have gone South if my mother had not died. My mother died when I was nearly 19, with multiple myeloma, and it really was a very liberating thing for me. It seems a horrible thing to say but I was so under her thumb that I was not allowed to be myself really. Anyway so going South was suddenly free from all restraint. It was a whole new world. I realised that there were all sorts of foods and drinks to be consumed, especially the drink. I was not allowed to drink when I was at home, but my dad's brother Michael, well I would sometimes go there at Hogmanay and be given a dram. I thought 'This is magic stuff'. Of course the booze on the *Kista Dan* was bonded stores, so once you were away from the jurisdiction of the country you were closest to, the bond was opened and it was 10/6d for a bottle of whisky you know. At the Crossing of the Line, I had just consumed far too much whisky and I was really very ill. But before that I was terribly seasick most of the time and I never really got over that. The whole trip I was liable to be seasick at any time. Yes, leaving home and going South was, it just was suddenly ... there was a new world which I had never been aware of before.

Track 4 [0:18:18] Chris Eldon Lee: *Having had a "sheltered" (in inverted commas) youth, did you find you had some catching up to do, compared to other men of your age? Were they more mature than you were?*

Track 4 [0:18:29] David Petrie: Well obviously some were, and others were not. Like there was Andy Champness; he was only about 19. He had his 21st birthday on base. He was a bit younger than me and he did come across as less mature than some of the others.

Track 4 [0:18:57] Chris Eldon Lee: *What I meant was your overtly religious background did not hamper you in any way, once you had been cut free?*

Track 4 [0:19:06] David Petrie: Not really, because suddenly the shackles had been loosened and I could live life to excess, if you like. So I suppose I was trying to sow some wild oats.

Track 4 [0:19:28] Chris Eldon Lee: *OK. You called at Portsmouth on the way South, to pick up some explosives, I understand? You are the first person to mention that kind of thing.*

Track 4 [0:19:37] David Petrie: Oh really?

Track 4 [0:19:38] Chris Eldon Lee: *Yes. Maybe everybody else did it as well. So what was the thinking behind that? Where were they destined for?*

Track 4 [0:19:44] David Petrie: Well as I remember it, I cannot remember whether it was the *Shackleton* or the *Biscoe*; we offloaded them at Deception.

Track 5 [0:19:57] Chris Eldon Lee: *Onto another ship?*

Track 5 [0:20:01] David Petrie: I don't remember the details, if we actually offloaded them onto the other ship or onto the shore, but I remember that was why we went to Deception.

Track 5 [0:20:13] Chris Eldon Lee: *So were they being used for depth soundings?*

Track 5 [0:20:15] David Petrie: Yes, that kind of thing. But I was not involved in any of that at all. They were probably using them to fix depths. They were doing the Decca surveys down the Peninsula and they were using the explosives for depth, and with the Decca survey they would be able to actually get their position over the sea bed, and so they would know what the depth was as well as fixing it relative to the land.

Track 5 [0:20:48] Chris Eldon Lee: *The other place you called in was Montevideo, and there was a problem with a broken leg at some point on the journey?*

Track 5 [0:20:56] David Petrie: Oh yes, that was Jim Franks at Hope Bay. There was another chap whose name I have forgotten right now.

Track 5 [0:21:05] Chris Eldon Lee: *Gordon Mallinson?*

Track 5 [0:21:08] David Petrie: No. I was going to say I met him last night, from Hope Bay. He remembered Jim Franks; he was there. Yes, Jim had a broken leg. He was in plaster. He came on board to go home but via Halley Bay obviously, because we picked up a dog team as well for Halley Bay.

Track 5 [0:21:26] Chris Eldon Lee: *Right. So your destination was Halley Bay. What did you make of it when you got there? Because it is quite extreme isn't it, the environment?*

Track 5 [0:21:32] David Petrie: Oh yes. It was fascinating. When you got there you saw this cluster of masts and poles and odds and ends lying on the surface, and then you realised that you had to go down this ladder to get into this troglodyte existence where you were down in these passages. It was the smell that was the real oddity, if you like, when you got down the shaft, because there was a mixture of smells which were things like bits of sealmeat, seal blubber, doggy smell (because they had had some dogs in one of the tunnels for a bit) – a foody, smoky, unwashed body sort of smell. It was like nothing else I had smelled before.

Track 5 [0:22:42] Chris Eldon Lee: *Were you expecting to be living underground, under ice?*

Track 5 [0:22:46] David Petrie: I do not remember whether we were expecting to be under the ice or not. We had been shown stuff from the IGY. Bill Bellchambers had

done a presentation. I am sure the pictures showed the old IGY hut still on the surface. Actually there was a guy on the ship (I have just remembered), Colin King – he was a met man. He was on the ship. He had been to Halley Bay, so he probably told us about being underneath. That has only just come to me now. I think he was doing some sort of met survey on the way; he was doing a summer charlie. There was another guy, Mike Thurston, he was a marine biologist. Going through the ice, we were shooting seals. We had already shot lots of elephant seals, for the dogs. We kept topping up with crabeater seals and we got a Ross seal, which was something that Mike was very interested in. That was taken back in the freezer to London.

Track 5 [0:24:21] Chris Eldon Lee: *Were they rare?*

Track 5 [0:24:22] David Petrie: Relatively rare, yes.

Track 5 [0:24:25] Chris Eldon Lee: *There is a story about Mike Thurston and a live penguin in the base at Halley. Were you around at that time? A penguin wearing a bow tie?*

Track 5 [0:24:37] David Petrie: No I do not know about that one.

Track 5 [0:24:40] Chris Eldon Lee: *You are excused from that then. So you came face to face with the beasties in location and I suspect in the usual manner of Fids, the handover time was minimal.*

Track 6 [0:24:51] David Petrie: Well it was in this case, because the normal scheme of things was that there was a year's overlap to get continuity of experience. I do not know why, but both bestiemen were leaving that year and myself and Chris were going down to replace them. Chris was only going for the one year so that the stagger would be re-established, the overlap. So yes, the handover was pretty minimal because we were still heavily involved in ... Everyone had to work helping to unload the ship because time was of the essence. You never knew when things might get bad. There was one occasion when the ship did have to leave the anchorage. It gets tied up to the sea ice.

Track 6 [0:25:44] Chris Eldon Lee: *Tell me about that moment. What was happening?*

Track 6 [0:25:47] David Petrie: Basically the wind got up and when the wind gets up, the sea gets up and then it breaks the sea ice because it is not thick enough to withstand the wave action. The ship has to unhitch from the sea ice and steam off until the weather moderates and then go back in to a new fresh bit of sea ice.

Track 6 [0:26:12] Chris Eldon Lee: *So it just goes to open water and waits.*

Track 6 [0:26:15] David Petrie: Yes. As far as I remember that only happened the one time. I was on board and we just steamed off and I thought 'Crikey, we are leaving already.' but no, it was only temporary.

Track 6 [0:26:28] Chris Eldon Lee: *So tell me about the routine work of operating these beasties. You have kind of outlined some of the functions when you were doing*

your training, you learned how to operate it, but when it came to the nitty-gritty, what was it like to work with these things?

Track 6 [0:26:43] David Petrie: Well you had to load the film, as I recall it was every day. The film would run for 24 hours. There was a big stainless steel bath (I think it was), like half an oil drum, and there was a rotating frame with horizontal bars and you clipped this paper record which was about 70mm wide photographic paper, and long. I forget how long it was now, but you wrapped it round this drum, with the safelight on because it was not panchromatic film, it was just monochromatic, so you could work with a red safelight on. You poured the developing solution into this bottom section of the drum, and wound the film round in it, so it was developed. Then you rinsed it and then fixed it, then rinsed it again and hung it up to dry. When it was dry, you rolled it up. I forget how often we used to do the work. It was one of these jobs that, because you did not have to submit the data every day, you could let it build up and then work on it in a batch, and get on with other, more interesting things. So all these films had to be identified, labelled and stored because they would be sent back at the end of the year.

Track 6 [0:28:36] Chris Eldon Lee: *So most of the work was to do with developing the films rather than actually running the machines?*

Track 6 [0:26:40] David Petrie: A lot of the work was to do with developing the paper and subsequently analysing it. Of course initially, when you were unsure about things, you were very religiously analysing, going through it, wanting to get it right. There were all sorts of anomalies being thrown up because the manual (there was a manual of ionospheric reduction, it was called, written by Roy Piggott who you must have heard mentioned already – great character – and another, German, guy); it was full of all sorts of anomalies which you might expect to find. It had lots of useful stuff but also there were things coming up that we just did not understand. We had to get the radio op to send a message to (eventually) Slough for them to try and resolve it, to help you resolve it. But lots of things were question marks. But as you worked through it, you began to become more confident that you were getting things correct. So you could do things more quickly, because it was very laborious to start with, until you really got the hang of it.

Track 7 [0:30:10] Chris Eldon Lee: *So were the anomalies actually happening in the ionosphere and the machines were measuring them correctly? It wasn't the machine having anomalies?*

Track 7 [0:30:17] David Petrie: No, no.

Track 7 [0:30:17] Chris Eldon Lee: *So tell me a bit more about that. What sort of things were happening in the ionosphere that you were marking up as being unusual or unfamiliar?*

Track 7 [0:30:25] David Petrie: Well what happens is that the radio waves are transmitted straight up. Now the ionosphere is a bit like a mirror (but not exactly). If you send increasingly high frequency signals up, it reaches a point where instead of being reflected back down towards the ground, they suddenly penetrate. The way they penetrate depends on the physics of the ionosphere, and that is varying a lot

depending on magnetic activity in the ionosphere. At the time I was there, 1963-65, we were approaching the period of quiet sun activity, low sunspot activity, so the ionosphere was behaving in a different way to the way it behaves when there is high sunspot activity. The density of the ionosphere varies and this produces some strange characteristics in the signal which are difficult to interpret, so that was throwing up anomalies which we did not understand.

Track 7 [0:31:55] Chris Eldon Lee: *They were accurate but you just simply were not familiar with them?*

Track 7 [0:31:59] David Petrie: Yes, but there was not any obvious way of coding them, to represent them, because things were assigned to codes as well, so there was not just frequencies involved; there were other bits of information tagged on. It was sometimes very vague as to what was the right thing to give it.

Track 7 [0:32:25] Chris Eldon Lee: *Was it explained to you how the information you were gathering was going to be used, practically?*

Track 7 [0:32:32] David Petrie: Yes. One of the things it was used for: as you know in those days you did not have satellites for communication . Long distance communication depended on reflecting signals round the world from the ground surface to the ionosphere and back again. Now the makeup of the ionosphere determined how far you could bounce the signals or what frequency you could transmit the data or information or whatever, via the ionosphere as a bouncing mechanism. People like the BBC broadcast on short wave and the frequencies they transmit on to get to Africa or wherever vary depending on both the time of day and the state of the ionosphere. There is a thing called the MUF, the maximum useable frequency. The higher the frequency, the more information you can transmit, and so they would use the data, not at Halley Bay as such, because it was out of date, but in other places like Singapore, Slough and other areas where there was communication. They would be publishing MUFs for that day or the next few hours for people working in transmission.

Track 7 [0:34:07] Chris Eldon Lee: *So is it, in this modern day and age, a rather redundant science now?*

Track 7 [0:34:12] David Petrie: No not really, because everybody is using satellite but things where secure communications nowadays, there is a severe possibility as you get more and more disturbed sunspot activity, you can knock out satellites, and you need a back up. The old-fashioned way of using short-wave radios is still a vital backup tool, especially for secure communications like defence and suchlike. So no, it is not redundant.

Track 8 [0:34:53] Chris Eldon Lee: *You got involved in other things as well; photography I was thinking of and also mechanical maintenance. Tell a bit about the non-ionospheric responsibilities you enjoyed.*

Track 8 [0:35:05] David Petrie: Well I was always interested, and most people too were I think, in what else was going on on the base. As I said before, I liked working with mechanical things and we had these motor toboggans, forerunners of these high-

speed things, came down. They were the absolute pits. They were supposed to replace huskies but ...

Track 8 [0:35:37] Chris Eldon Lee: *This is the Eliasons?*

Track 8 [0:35:39] David Petrie: Yes the Eliasons. We called them Elsans, after the old thunderboxes, the forerunners of the Portapotty type camping things. So I got landed with maintaining one of them, because we used the other for spares. But it was never used seriously very far from base because they were just so badly built. Maurice Sumner had hoped to use them as a dog replacement tool but they just did not work properly and he gave up, but they were handy for doing odd things around the base, out to flags and things and even for jollies.

Track 8 [0:36:32] Chris Eldon Lee: *And photography; compared to the west coast of the Peninsula, Halley is not terribly photogenic, I would imagine.*

Track 8 [0:36:39] David Petrie: Well it is surprising. Everybody just about seemed to get the photography bug. You see we were given an allowance of film and chemicals per man, and there was a darkroom on base. You did not have to restrict yourself to scenic photography. Lots of people did experiment with all kinds of things: still lifes and people and dogs, day-to-day goings on on the base. So there was quite a bit of creative work going on, trying to get the best out of black and white. Plus several of us, by our second year, had sent off for home processing in colour, so we were doing colour as well.

Track 8 [0:37:40] Chris Eldon Lee: *Were there competitions, exhibitions?*

Track 8 [0:37:42] David Petrie: Yes, there was an annual photography competition, and it produced all sorts of interesting stuff, some of it very good.

Track 8 [0:37:50] Chris Eldon Lee: *You were doing ozone readings which of course at the time nobody knew quite how important that was going to become.*

Track 8 [0:38:01] David Petrie: That is right. I helped a chap called Jim Westwood. He was the geophysicist who had come down on the ship with us. I forget who he was replacing, I forget the name of the guy.

Track 8 [0:38:18] Chris Eldon Lee: *Did you understand why you were doing these readings?*

Track 8 [0:38:26] David Petrie: No, except that it was another parameter to measure, about the characteristics of the Earth's upper atmosphere. It was a static scientific base and there was an exploration side of things. We understood that the more you know about the world the more you can understand it.

Track 8 [0:38:57] Chris Eldon Lee: *So it was pure science for the sake of it.*

Track 8 [0:39:00] David Petrie: Oh yes, that is right, because the same as the ionospheric work, it could not be communicated directly to anybody else. It was basically just building up a record of stuff which one imagined would be useful later,

and the same with the ozone. The only thing which was nearly real-time was the met stuff, because that all got sent off shortly after the observations, like the upper atmosphere winds. There was a balloon launch every day, so I occasionally helped out with driving the wind-finder radiosondes.

Track 8 [0:39:46] Chris Eldon Lee: *When Joe Farman and his team announced their findings in 1985, what were your feelings when you heard or read about that?*

Track 9 [0:39:57] David Petrie: I thought 'Well that is interesting because I was involved in some of that way back in Halley Bay.' Yes, it was particularly interesting in that, having discovered that the NASA people had not set the calibration levels low enough on their satellites because they did not think it would ever get below their cut-off level. They were seeing all these anomalies; so it was shown by Joe Farman et al. that it really was real.

Track 9 [0:40:29] Chris Eldon Lee: *Did it come as a complete surprise or had you already had some sort of inkling that things were not good back in the '60s?*

Track 9 [0:40:37] David Petrie: No, no idea.

Track 9 [0:40:39] Chris Eldon Lee: *No idea? OK. You were doing some fieldwork as well. One of your colleagues Mike Walford was trying out a radio-echo ice-depth sounder. I think you got involved in that to a certain extent as well, didn't you? It was mounted on a Muskeg, I believe?*

Track 9 [0:40:56] David Petrie: Yes, he had got these aluminium tubes: 2-inch diameter pipes sticking out about 6 or 7 feet either side of the Muskeg, connected to a transmitter/ receiver system. I think there was a transmitter one side and a receiver the other. That was a forerunner of work that I was obviously involved in a lot more, not that I expected that at the time. It was because it had been noticed from ionospheric soundings, somebody had noticed during IGY that they appeared to be getting reflections from something not the ionosphere, and eventually they deduced that it was returns from the bottom of the ice shelf. I do not remember ever noticing that when we were doing the beastie work. Anyway Stan Evans at Scott Polar Research Institute, who had been down in IGY to Halley Bay, had picked up on this and was developing this technique to actually use radar to look at the ice depth. That was what Mike was working with then, so I was the driver for the Muskeg. It was one with a big cab – one of the first ones with the big cabs, because they still had the wee low ones. We drove around the ice shelf for about a fortnight with this equipment and a Maudheim sledge with petrol and provisions and a caboose on another. So it was a two-sledge tractor train, sledge train.

Track 9 [0:43:00] Chris Eldon Lee: *How successful were those early attempts at radar recordings of ice depth?*

Track 9 [0:43:06] David Petrie: Oh he had a lot of problems. I do not know actually what the results were, that he achieved. I was not so interested in that aspect of it at the time. I was more interested in the driving and being out there, rather than the technique at the time. It obviously improved, as you will have seen.

Track 9 [0:43:37] Chris Eldon Lee: *Can I talk to you about Neville Mann, briefly?*

Track 9 [0:43:41] David Petrie: Yes.

Track 9 [0:43:42] Chris Eldon Lee: *You were around Halley at the time of his death?*

Track 9 [0:43:45] David Petrie: Yes, I was just recalling; I was talking to Fergus O’Gorman this morning at breakfast, saying ‘Anybody that you see in here with a beard is likely to be a Fid.’ And he said ‘Yes that is true.’ He said ‘Have you always had a beard?’ I said ‘Pretty well.’ I had been bitten in the throat by a dog and I had scars and I was always cutting myself, so I thought ‘Bugger this.’ I remember, I said to Fergus this morning ‘I remember talking to Neville Mann about this business about beards in the late ‘50s / early ‘60s. People would not employ men with beards; they thought there was something wrong with them, reactionary or going to upset the apple cart.

Track 9 [0:44:38] Chris Eldon Lee: *Beatniks?*

Track 9 [0:44:40] David Petrie: Aye, beards were a no-no for employers. That is about all I really remember about Neville, talking to him about that on base, but I remember the time that Gordon Mallinson came back saying that he thought Neville Mann was back and we had not seen him, so we set off, we tried to set off, Muskegs with lights but there was too big a blow and you could not see anything but reflected light off the snow. So it was pointless to try and get anywhere, because we could have gone over the edge ourselves.

Track 10 [0:45:27] Chris Eldon Lee: *So in the end what was the conclusion that the base came to as to what happened to Neville?*

Track 10 [0:45:33] David Petrie: Well a number of us, when the weather cleared, went back down onto the sea ice. It had broken out a long way and you could see sledge tracks, Gordon’s and Neville’s, you could see them together but I certainly remember seeing two lots of sledge tracks abruptly stopping and open water. So that was the pair of them at that point, given the way the dog paths were. It was pretty clear that he had just been caught in the storm and the sea ice had broken up.

Track 10 [0:46:16] Chris Eldon Lee: *And he had been carried out to sea?*

Track 10 [0:46:18] David Petrie: Well that is the implication, or just toppled in and gone through the ice. Probably that rather than being carried out, because if it is a good blow, it breaks up into quite small sections.

Track 10 [0:46:31] Chris Eldon Lee: *What was the mood on the base?*

Track 10 [0:46:33] David Petrie: Well I was trying to think about that when I was thinking about it for this interview and I do not recall anything one way or the other. It is just a bit of a blank to me. No, I have no recollection of how we felt. Whether that says anything or not, I have no idea.

Track 10 [0:47:00] Chris Eldon Lee: *No that is fine. Was there discussion about what lessons could be learned and how it could be avoided from happening again? We are in the very early days still of FIDS and so every time something went wrong there were usually lessons to be learned.*

Track 10 [0:47:13] David Petrie: Yes. There certainly was discussion. Probably a lot of that was by people more involved in fieldwork, because I really was not a field man at that stage. No I do not remember.

Track 10 [0:47:43] Chris Eldon Lee: *OK. We must move on a little bit because we still have quite a lot of ground to cover and we have got about 20 minutes left. From Halley you went to Adelaide?*

Track 10 [0:47:55] David Petrie: Well eventually, yes.

Track 10 [0:47:58] Chris Eldon Lee: *With a bit of a gap back in the UK?*

Track 10 [0:47:59] David Petrie: Yes, because out of the blue I had this letter from the Scott Polar Research Institute saying 'We think you would be good to work for us.' I was gobsmacked because I thought 'Crikey, how do they know about me?' and that I would not be any good anyway. They said 'You had better come for an interview.'

Track 10 [0:48:18] Chris Eldon Lee: *So you had come back, without any job prospects?*

Track 10 [0:48:23] David Petrie: Absolutely yes. I had two or three months back at the now named Radio and Space Research Station where I met my first wife because she was doing work there as well. Then I got digs in Cambridge and worked in the Scott Polar since the summer of '65. I cannot remember exactly what month, somewhere about July I think, because I had been at Slough for two or three months, just tidying up some of the data, the paperwork and stuff.

Track 10 [0:49:13] Chris Eldon Lee: *And it was SPRI who offered you the opportunity to go back South? Which you thought about for a long time or ...?*

Track 10 [0:49:19] David Petrie: Oh no. Bang! 'I would go back tomorrow.'

Track 10 [0:49:22] Chris Eldon Lee: *Why were you so desperate to go back? Keen is perhaps a better word.*

Track 10 [0:49:31] David Petrie: Yes, 'keen' is a better word than 'desperate'. Yes, I was not desperate. No, I just found base life great and I loved the isolation. I liked the camaraderie that we had, and making do with what you have got. If something went wrong, the satisfaction of 'Well I will fix that in spite of the odds.' where supplies and facilities are limited.

Track 11 [0:50:13] Chris Eldon Lee: *So on Adelaide Island in '66 one of your main functions was to help with the echo-sounding from the air?*

Track 11 [0:50:21] David Petrie: Well I was the echo-sounder.

Track 11 [0:50:24] Chris Eldon Lee: *It was you, was it?*

Track 11 [0:50:24] David Petrie: Yes. Charles Swithinbank was the navigator and suggesting where he wanted the equipment to be flown over, but I had been very closely involved in developing it, principally with Stan Evans, and doing all the mounting of the equipment on the aircraft. On the aircraft struts we had the transmitter and receiver antennas; we had to get stuff made up and cabling into the aircraft and then setting it up in the aircraft, and adjusting it to work properly when it was on the aircraft. So Charles had nothing to do with any of that side of it. I was the 'one man band' on the radio echo stuff.

Track 11 [0:51:18] Chris Eldon Lee: *Is there a story to tell about that work you were doing, on the Otters?*

Track 11 [0:51:28] David Petrie: Well the Otter, we subsequently discovered, was non airworthy.

Track 11 [0:51:35] Chris Eldon Lee: *Whilst you were flying it you mean?*

Track 11 [0:51:36] David Petrie: Well yes, while we were flying. We had been flying it for some time. It was not until the Pilatus Porter came down with John Ayres the pilot and his mechanic whose name I have forgotten right now and they had a look at the Otter and said 'Mm-mm!' and showed us through the rear hatch. The stringers, the long bits that go along the fuselage which hold the skin on, and other parts were just flapping loose. It was all coming apart at the back. [laughs] That again used a photographic recording system and we had a lot of trouble with the photographic system. We also tried running an aerial photography camera, a proper aircraft one. The Otter had a wee hatch with a heated cover, where you could put this camera, but that did not work very well. There were always problems.

Track 11 [0:52:48] Chris Eldon Lee: *Did you find yourself having to fly quite low at times?*

Track 11 [0:52:52] David Petrie: Oh yes. Not so much in the Otter. The new pilot in the Pilatus, Tony Ayres, was very keen to do whatever Charles wanted by way of flying. Yes we were doing 20-foot flights. There was an area called the Wordie Ice Shelf which has now disappeared. It was very wet and the signals that we were transmitting to try and get some penetration and a reflection; we needed to get as close to the ice as possible because it was wet and warm and the signal gets absorbed very quickly. So the closer you can get, rather than flying from a great height, you were losing some signal just going through the air. We tried to reduce that by flying closer to the ice.

Track 11 [0:53:59] Chris Eldon Lee: *Did that generate any Health and Safety compromises?*

Track 11 [0:54:02] David Petrie: What is that? Health and Safety?

Track 11 [0:54:08] Chris Eldon Lee: [laughs] *You answered my question quite succinctly. Thank you very much indeed.*

Track 11 [0:54:11] David Petrie: [laughs] No the main Health and Safety things were this business of the supplementary fuel tank which we had in the Pilatus. It was a very small plane. It did not have nearly as much cargo space as the Otter and to do some of the long flights that we wanted to do we had this 50-gallon oil drum full of avtur and a pipe. The oil drum was in front of me, right where you are and I had my equipment in front of me and the oil drum behind that. It was quite a narrow fuselage, about this wide, and the pipe came up over my head and up into the wing tank I think it was, and there was a connection that came loose and sprayed me with aviation kerosene. So that was a bit of a bummer. [laughs]

Track 12 [0:55:14] Chris Eldon Lee: *You went back in the '70s, '73/'74, again to do radio-echo work with the Twin Otter. This time it was not actually airborne by a step survey work, it was a different ?? [inaudible] altogether?*

Track 12 [0:55:31] David Petrie: Yes, that was a chap called Chris Doake, with Charles Swithinbank's suggestion I think. We tried to measure the velocity of one of the glaciers. It was the Fleming Glacier, which was known to move fairly quickly, and the idea was that we would use the same equipment modified slightly, and we constructed a rail track out of Dexion and stuff. We towed the equipment up and down and tried to identify the surfaces underneath the ice on the glacier bottom and relate that to where it was day by day, but in fact it did not work like that, because these points which we had identified; they would not be there subsequently. It was a pretty frustrating sort of exercise, but we were on the glacier for several weeks, trying different techniques with the equipment.

Track 12 [0:56:45] Chris Eldon Lee: *I am getting a very strong impression from you that a lot of the science was actually very hit-and-miss, and the success rate was quite low in those early years that you were there?*

Track 12 [0:57:01] David Petrie: Well that particular technique was, yes, but the success of the airborne radio-echo sounding was pretty good except for ... That was the first time it had ever been done. In '66/'67 nobody knew quite how well it was going to work in the Antarctic. I had missed a trip to the Arctic (to Ellesmere Island) because I had broken my leg, and they had tried it out there with fairly good results. This was the first time it had ever been taken to the Antarctic, and generally speaking it produced a wealth of good information. It was just when we were trying to push the limits, if you like, to see where it would work and where it would not work; and warm wet ice that was where we were flying very low. This glacier movement one was one which did not turn out to work as expected.

Track 12 [0:58:05] Chris Eldon Lee: *OK. Again we move forward to going to McMurdo with Stan Evans in '69/'70 and you were instrumental in the discovery of Lake Vostok. Tell me that little story, if you wouldn't mind.*

Track 12 [0:58:19] David Petrie: Well what happened: the reason we were over that way was: as you know it is a 'continent for science' as they used to term it. National claims have been set aside and there is a precedent whereby any nation can call in on

somebody else's base unannounced and say 'Let us see what you are up to.' The American admiral who was running the show that particular year had been to the Russian base at Vostok and he had left his camera. So they said 'Why don't you guys do your ice depth sounding work on a traverse to Vostok and get his camera?' So we landed, much to their surprise, at Vostok, and were greeted effusively by these very pale-face Russians. They were desperately keen to barter grotty soap and Russian fags for our better-quality bits and pieces, and plied us with instant vodka and caviar and beer. It was amazing. But I think it was on that flight that we first saw the evidence of this very strong reflecting surface under the ice and it turned out to be Lake Vostok.

Track 13 [1:00:06] Chris Eldon Lee: *When you began to pick up those readings, were you instantly able to work out what it was, because water under ice was an unusual situation?*

Track 13 [1:00:16] David Petrie: That is right. It was because it was a strong reflector rather than the rock interface ...

Track 13 [1:00:24] Chris Eldon Lee: *So you knew exactly what it was straight away?*

Track 13 [1:00:28] David Petrie: No.

Track 13 [1:00:30] Chris Eldon Lee: *Talk me through that thinking process you went through.*

Track 13 [1:00:32] David Petrie: I did not myself.

Track 13 [1:00:34] Chris Eldon Lee: *Or the team went through?*

Track 13 [1:00:35] David Petrie: You see again this was photographic reproduction work, 35 mm film going past the CRT, and that had to be developed. I had invented this bit of machinery for compressing these long films into shorter lengths of paper. I had got this projector which projected the original film onto a modified old aerial photography camera, a big plate camera with a motor-drive. I projected it onto a slit and I had photographic paper going past at a different speed relative to the projected film speed, so I could take this long 100 ft length of film and compress it into just a few feet. That gave the first visual indication of what you were seeing because it was difficult to see on the original film exactly what was going on.

Track 13 [1:01:57] Chris Eldon Lee: *So you discovered it?*

Track 13 [1:01:58] David Petrie: No I did not discover it.

Track 13 [1:02:01] Chris Eldon Lee: *You were the first to see it then?*

Track 13 [1:02:02] David Petrie: I would not say I was the first to see it, no.

Track 13 [1:02:06] Chris Eldon Lee: *I am just trying to get an idea, when the printouts were looked at, the new condensed printouts were looked at, and it began to look like there might be water under the ice, how that ?? [incomprehensible] reacted*

to that possibility. Because it was something you were not expecting, I should imagine.

Track 13 [1:02:30] David Petrie: Yes. I do not have much recollection about that. Sorry. But it was interesting that there was all this water anyway.

Track 13 [1:02:43] Chris Eldon Lee: *They are planning to drill down to it now, aren't they?*

Track 13 [1:02:46] David Petrie: They are a long way down. I do not know how close they are but the big controversy is how they break through and how they make sure they do not introduce contamination one way are another, either chemical or biological. Because they really want to know what is naturally in that body of water, because there could be more strange extremophile life there like they have found in these smokers and hydrothermal vents where they have got weird living organisms. Who know, there might be something there. And also what temperature is it?

Track 13 [1:03:24] Chris Eldon Lee: *What is your feeling about what they are doing? Do you support the drilling?*

Track 13 [1:03:30] David Petrie: Oh yes, you want to find out about things that are unknown. You know there is something there and you want to know more about it.

Track 13 [1:03:41] Chris Eldon Lee: *Finally I have to ask you about your kilt, and your Scottish dancing. I think we are back at Halley again now, aren't we?*

Track 13 [1:03:55] David Petrie: Well actually I boarded the *Kista Dan* wearing my kilt.

Track 13 [1:04:01] Chris Eldon Lee: *So you laid out your intentions there?*

Track 13 [1:04:04] David Petrie: And I nearly got arrested in Montevideo, wearing the kilt. A policeman was taken very much against it and I did not have much Spanish although I had done Spanish at school. There was a bit of a crowd developed and somebody came up, spoke English and said 'Just agree with the guy. Just move on or you will be arrested.'

Track 13 [1:04:36] Chris Eldon Lee: *What I have here is that 'after a meal on base and a film and some drinks, someone will put on a Scottish dance music record and David, complete in his kilt, will be first on the floor, kilt and legs flying in a good imitation of a Scottish reel. Other Fids would join in and soon there would be twenty or so hairy-arsed explorers doing their thing, abandoned in the icy depths of the Antarctic.' It was all your fault.*

Track 13 [1:05:01] David Petrie: I don't know if it was all my fault but I remember some people danced with floor-mops. That was the 'girls'. Yes I have got the odd photograph of me on skis on the ice as well in my kilt.

Track 13 [1:05:19] Chris Eldon Lee: *It has been a pleasure. Thank you very much indeed, David.*

Track 13 [1:05:23] David Petrie: That is OK.

Track 13 [1:05:23] Chris Eldon Lee: *Thank you.*

Track 14 [1:05:24] ENDS

Snippets:

- The training for 'beastmen'. Track 3 [0:09:55]
- The beastie ran on bicycle chains. Track 3 [0:13:20]
- The alcoholic joys of going South. Track 4 [0:16:18]
- The Halley pong described. Track 5 [0:21:32]
- The Eliasons (Elsans) and their deficiencies. Track 8 [0:35:39]
- Ice depth radio sounding from a Muskeg. Track 9 [0:40:56]
- Neville Mann's demise and its aftermath. Track 9 [0:44:40]
- The Otter not airworthy. Track 11 [0:51:28]
- A shower of avtur. Track 11 [0:54:11]
- Rail track on the Fleming Glacier. Track 12 [0:55:31]
- Lake Vostok discovered thanks to a lost camera. Track 12 [0:58:19]
- Don't wear a kilt in Montevideo. Track 13 [1:04:04]