

MIKE PINNOCK

Edited transcript of a recording of Mike Pinnock interviewed by Chris Eldon Lee on 19th November 2011. BAS Archives ADC/24/1/150.1. Transcribed by Andy Smith, 23th January 2013.

[Part 1 0:00:00] Lee: This is Mike Pinnock recorded by Chris Eldon Lee on the 19th of November 2011. Mike Pinnock, Part One.

Pinnock: Mike Pinnock, born in Melton Mowbray, Leicestershire, in 1954.

[Part 1 0:00:14] Lee: And your birthday is?

Pinnock: 6th of March.

[Part 1 0:00:17] Lee: So now you are ...?

Pinnock: I am 57.

[Part 1 0:00:20] Lee: . What kind of education did you have? Did you have further education?

Pinnock: I did, although not to the level I would like to have done. I did an Ordinary National Certificate in Electrical and Electronic Engineering. Then I did a Higher National Diploma (HND), and then I went into BAS. Sorry, I was in industry and then I went into BAS.

[Part 1 0:00:42] Lee: What was it about industry that made you want to leave?

Pinnock: I did an apprenticeship with GEC (General Electric Company) and that got me around a lot of British industry at the time. This was 1973-76. With the benefit of hindsight, I can see that British industry was at an all-time low. That is well recognised now and industry was quite a depressing place to work at the time. I was working as a commissioning engineer and then as a junior manager, what they called an area engineer running teams. I found it very stifling. There were always people looking aghast at how much work you were putting in. Particularly as you were working away from home, I quite often preferred just to get the job done as quickly as possible whereas other people were clock watching. And then the whole atmosphere around places like the Cowley motor works near Oxford – I used to work in a lot of the car industry at the time - was just outright confrontational. I had also decided – I don't want to make a big thing of this, it wasn't some big moral thing – I decided that I didn't want to work in the defence industry which was a huge part of the electronics industry at the time. So a combination of things came to a head when GEC I felt were not offering me many more opportunities. So I started looking for something else and I realised, against the background of what I just said, that I really wanted something quite different.

[Part 1 0:02:23] Lee: What actually had led you into the engineering industry in the first place?

Pinnock: Probably a lack of knowledge of what I really wanted to do. The only thing I knew about (because my father was an electronics engineer) was engineering. I did hugely enjoy science at school and was always building things. I could see that I had some talent, some skills there, but I can't say it was a great burning zeal. It was just 'That's the thing I know, so I will go into that.'

[Part 1 0:02:54] Lee: What would you say was your first awareness that a place called the Antarctic actually existed?

Pinnock: Oh, that's a good question. Almost certainly the film *Scott of the Antarctic*. I wouldn't want to say that that made a huge impression on me. I was much much more aware of mountaineering, the Himalayas, Everest. I did a lot of hillwalking. I had started rock climbing and I think that then led you into, through people like reading Tilman's literature, started to lead you towards the polar regions. Ice and snow, I did always find fascinating. I still am very keen on winter walking, much more than summer walking quite frankly. So when finally BAS did impinge on my consciousness, it was hugely attractive. Yes, it was just 'Wow, yes, there's an opportunity.'

[Part 1 0:03:52] Lee: This was an advert you saw?

Pinnock: Yes, I saw an advert ... Actually I didn't see it. A really good friend of mine, the best man at my wedding, we were out at the pub one night and I was probably crying into my beer, saying how miserable it was working in GEC or whatever. He said 'I saw just the advert the other day, just the thing for you.' He then passed me the clipping a couple of days later, and it was BAS advertising for what they called ionospheric physicists but they wanted either engineers or physicists to go and run the ionospheric programme down in the Antarctic at their bases. For some reason I still don't understand, I did sit on it for a couple of weeks and then wrote off, got the application form and applied and then found myself in Cambridge in the new building (then). This was the summer of 1976 and BAS had just been brought together from all its different university locations and the headquarters in London. It had all been brought together in Cambridge, so I went into this brand new building and with the benefit of hindsight from where I am now, that really was the start of modern BAS. It had all been brought together. That enabled a lot of things that hadn't been possible really previously, particularly on the science side.

[Part 1 0:05:18] Lee: What do you recall about the interview? Who was on the other side of the table?

Pinnock: Eric Salmon was the chair. John Dudeney and Dick Kressmann were the other two interviewers. I remember immediately warming to Eric Salmon, who I loved greatly. He was a lovely man. He did things his own way but was very much on the Fids' side. I remember him giving me the toughest question which something along the lines of 'So what do you plan on doing when you return from the Antarctic?' I didn't have a clue so I gave some really waffley answer like 'I would aim to capitalise on the experiences I'd had, and I heard him mutter under his breath to John Dudeney 'What, as a stevedore?' Of course after having done a relief at Halley, you entirely understood that remark. So, yes, that is the main thing that I remember from the interview.

[Part 1 0:06:18] Lee: How much at that point did you know or not know about ionospherics?

Pinnock: Absolutely nothing. I did read up before the interview. I went to an encyclopaedia and found out what the ionosphere was. Short wave radio and its means of propagation I knew about but I didn't know anything about the physics. Fortunately for me and for the rest of my career really, because BAS could not afford to have the data that was collected by the radars analysed, they trained engineers like me to analyse the data. That just naturally led you into the physics. Well I found that was the case anyway. So they gave you this training from people who knew... It wasn't just a technical exercise; they would explain as they went along what you were actually seeing in the physics and the way the ionosphere was behaving, and I found it fascinating. The ionosphere over Halley is a very curious beast. It is very significantly different from anywhere at low or mid-latitudes. When you get to that high polar latitude, the ionosphere is really very challenging to interpret what you are seeing.

[Part 1 0:07:38] Lee: Can you elaborate on that?

Pinnock: Basically it is a photographic ... Well it was in those days; it is all digital now of course. It was a photographic film record so you just ran a piece of film across the cathode ray tube. Then you developed the film yourself. We had all the developing kit in the hut, and you ended up with this big spool of 35mm film. The machine went off every fifteen minutes and you put it on a viewer. You just wound through and certain characteristic traces you would see on the film. If they were nice and well-behaved, you could then take off what the electron density was in the ionosphere, and you would see the diurnal variations, seasonal variation. However the closer you get to the auroral zone, and then when you are in the auroral zone, those records become incredibly complex, and are really quite challenging, even to this day, to interpret exactly what it is that you are seeing. We saw one feature regularly every night which we now know is basically a big hole in the ionosphere. Something called the mid-latitude trough. It is now quite well understood, but Halley contributed a significant amount of data towards that understanding and then the satellite era started to map that out. Again that was another feature of when I started work: within a few years we were working a lot with NASA satellite missions, combining the ground records with the satellites that were flying over Halley at 350 km altitude or whatever. Again it was a huge growth area then as well in the science.

[Part 1 0:09:22] Lee: Were the conditions in the Antarctic purely natural, or was man also, as he has with the ozone layer, been influential in the peculiarities of the Antarctic?

Pinnock: Probably not then. I mean, bear in mind that when I first went down we did not know what we were doing to the ozone hole. That was another ten years away really, before we had that understanding. No it seemed completely virgin, completely untouched by man. It always struck me that you only had to walk 5 or 10 minutes from base, with your back to the base at least, you were seeing something that was just completely untouched by man.

[Part 1 0:10:05] Lee?: But I was thinking of the strange conditions in the ionosphere that you were ... Were they man influenced?

Pinnock: Oh sorry yes. No, that is completely natural. We understand that fairly well now. At the auroral zones and polewards, that is where all the interaction between the material that is coming off from the Sun, the solar wind, interacts with the Earth's magnetic field and shapes what you are seeing there. But because the Sun is highly variable in its output, you end up with a very variable ionosphere.

[Part 1 0:10:39] Lee: How did a humble GEC engineer take to this kind of cosmic stuff?

Pinnock: It was fantastic. It was completely liberating actually. I was fortunate in that I must have had nearly a four month training period, in Cambridge, and towards the end of that period I had mastered most of the training and then I got interested in one or two bits of engineering. Again, this is where it was so liberating compared to GEC. It was 'Well, that's not a bad idea. Why don't you go ahead and see what you can do?' and I would say 'I haven't got this bit of equipment.' and they would say 'Well we might be able to get this here.' It was the classic Fid/BAS attitude of 'Let's see what we can do.' So it was that and the intellectual challenge, and then the challenge of meeting all these people from very different backgrounds, very different science areas. That summer in Cambridge I found quite heady. It really was exciting.

[Part 1 0:11:56] Lee: How was the Antarctic when you got there?

Pinnock: I guess ... I hope BAS still does quite a good job of preparing people. We run things like the Girton Induction Workshop, which in my day was called the Cambridge Conference. So the whole point of that is that when you get there, you go: 'Ah yes, I have seen the pictures of that.' or these days 'I have seen the video. I have been told about that.' There was an element – it is difficult to convey it – there was, as the ship sailed into the Weddell Sea, there was just straightforward awe. Incredible; you had never seen anything like it. Travelling up to the base, it was still 'Wow'. I guess around base it was 'OK yes, I have seen the pictures of this. I was expecting that. I know this is like that.' Also actually just the incredible realisation that although you were in a potentially very hostile environment, it actually at times was not only remarkably easy to be comfortable, but it could be a real pleasure working on a summer's day at Halley outside. I think you quickly get over the natural ... Most humans would go 'I don't want to go there. It is minus whatever temperature and wind. It is all just ice.' You quickly began to feel at home in the place.

[Part 1 0:13:24] Lee: Was there any kind of glass wall between the practical chaps and the scientists who were doing their research?

Pinnock: Yes, most definitely. I wouldn't say it was a glass wall. I think at best there was a recognition on the science side that a lot of the support staff had a lot more experience of life, and were a lot more practical, quite frankly, than many of us from the science side. The science side, like myself, were very typically 21/22 years old. I probably had a lot more practical experience than most people working in the ionospheric side or the met side for example. Most of them would have been straight out of university. So I think there was that natural division between people who had

seen a good bit more of life than most of the scientists. At the same time, the support side, many of them were very very keen to support the science, and had a lot of respect for the science, were keen to help it happen, keen to understand more about it. So I think at best it worked very well. Yes there were times when ... Some of the best scientists can be ridiculously demanding and not that aware of what is going on around them at times, and that can lead to tensions. But they usually get put right fairly quickly.

[Part 1 0:14:53] Lee: So here you are at the beginning of 1977 at Halley. What were the first things you were being asked to do. Were you 'deep-ended'?

Pinnock: Yes. I was very much deep-ended. In fact I look back on it now, I was sent up to the drum line at Halley, where we were unloading the 45-gallon drums and basically I think somebody forgot that I was out there. I spent the first ten days on the just rolling drums on the drum line. Afterwards someone said 'You shouldn't have been up there that long. We should have taken you off there and given you another job.' But I just thought 'Well this is what they asked me to do so I got on with it.' So I did spend ten days just rolling drums off BAS cargo sledges, which was never the easiest of activities, as anybody who has done it will tell you. So it wasn't until the end of the relief that I actually really started to be able to walk round the base, take a look, see where it was I was going to be working for the next couple of years, go down to the ship for the final farewell party. So yes, it was very much straight in at the deep end.

[Part 1 0:16:05] Lee: This was Halley III wasn't it, when you got there?

Pinnock: This was Halley III, the Armco base, yes. That of course in itself was an experience, because I kept going back to Halley III for many years afterwards, and it was always interesting to observe people's first reaction to going down the shafts and going into the base. It is quite alien. It is amazing how quickly it seemed like home. Although these days, with the surface bases at Halley, with windows etc., people look askance somewhat at the under-the-ice bases. I think what they don't recognise is, particularly in the depths of winter and during storms, getting to the shaft, climbing into it, pulling the hatch shut and then going down into the light and the warmth of base, actually felt very comfortable. Certainly the living block, yes it was home. A lot of wood features in it which we don't always have these days on the bases. It felt cosy. It wasn't uniformly You were always going in and out of the connecting tunnels which could be at nearly zero or colder in winter, but they were cosy bases.

[Part 1 0:17:25] Lee: No sense of claustrophobia?

Pinnock: Not for myself. There definitely were people I wintered with, who found it claustrophobic. I think the only thing I suffered (and this was sorted out eventually), was we had very poor ventilation in the base. Really there was next to no ventilation designed into the base in '77. I quickly realised that I pretty well had to go outside every day in order to stop getting a mild headache. I don't want to make it into a big thing but when one of the builders came in, in '81, he set to, dragging air through the base and getting it ventilated. That was the slightly ironic thing about the under-the-ice bases, that they got more and more comfortable as they got to the end their life. Everything else was working against them. They were being crushed. Eventually you

were having to abandon them, but they were generally made more and more comfortable through their lifetimes. Certainly a good ventilation system that was put in in '80 or '81 made a lot of difference.

[Part 1 0:18:26] Lee: This hasn't occurred to me before, but I am trying to imagine it. I have not been to Halley and I am trying to imagine what it must be like to live in a tube in the middle of a block of ice, and I guess it feels similar to being on a plane, in that you have no visible means of support. I wonder how easy it is to get a good night's sleep when you know that actually below you is only ice and water, and above you is only ice and air?

Pinnock: Not anything that ever troubled me. As I say, I found it a comforting place to come into from the outside, particularly in winter. The only disturbing thing was that (because I wintered '77, '78 and then '81), and by 1981 we knew that the base was close to the end of its life. It did close at the end of 1983. The Armco tube was being crushed. It had got to the stage already where the Armco tube was bearing on the eaves of the wooden hut. And then the hut was on a metal trellis. The Armco bolts started shearing, and these are bolts that are a good 20-25 mm diameter, so when one of those sheared, it was like a rifle shot going off. The only discomfort I used to experience would be: at three in the morning you would wake up with your heart pounding because basically a rifle shot had gone off. So that was the only discomfort I think, that I experienced. As I say, I did find it a comfortable base to be in.

[Part 1 0:20:04] Lee: Most of your work though, initially, was establishing the technology to do this ionospheric research, which I guess was nearly all done outdoors. Tell me about the outdoor duties you had early on?

Pinnock: Well the main hut I worked in was actually a hut from Halley II, which had been built on the surface and then gradually buried. All the equipment was set up when I came in. It had been running for a number of years. I did bring in a complete new suite of equipment in 1981, at the start of that year, but when I first went there it was all set up and running. It wasn't in particularly good condition and it became clear to me after a month or two working there that the performance of the machine was not what it should be. It was below spec. So there was quite a long haul that winter getting things up to scratch and working properly. In 1981, yes, it was very much a case of in the fairly short relief period (I think we might have had 3 weeks that year), we brought in a whole new radar, the first computer-controlled radar. We had 45-metre masts to stick up, two 45-metres and one 30-metre mast, a huge amount of cable work to run around, a whole new receiver array to put in. We had a whole new generator to set up as well, just to power that experiment. That was a great project to be part of, but it was a very demanding period.

[Part 1 0:21:38] Lee: Just so I know, was this the SuperDARN you are talking about?

Pinnock: No, that came later. This was called ..., BAS called it the Advanced Ionospheric Sounder. It was an instrument that had been designed by a lab in the States, and John Dudeney had negotiated an incredible deal, whereby we got a huge amount of the equipment for very very little cost. So we just had to provide all the basic infrastructure for the antenna array. So that was the Advanced Ionospheric Sounder. It was the first digital-controlled instrument on base and it also, by the end

of 1982, and because of the Falklands War, it also provided the computer that hosted the first satellite communications with Halley. Because basically you needed two computers, at either end, that would speak to each other. So that was a very exciting project to be involved with and it really was ... Although I loved the Antarctic and I couldn't ... After I came out in '77/'78, I couldn't imagine it not being part of my life, but I recognised that it would probably be unlikely I might go back. Then this new project came up and BAS were going to train me in computers which I had not really had in my academic training, so it was a great career opportunity as well.

[Part 1 0:22:58] Lee: How reliable were those early digital things? The compact disc didn't ... The compact disc was eighty ...?

Pinnock: No, we didn't have compact discs.

[Part 1 0:23:07] Lee: Well the point I am making is: it was even before compact discs. It was fairly basic digital technology?

Pinnock: Yes it was.

[Part 1 0:23:12] Lee: So tell me about how much faith you had in your ?? [inaudible]

Pinnock: The actual computer unit itself worked very well and you could really get into the guts of the thing. It gave you a fantastic grounding on how computers actually worked. All the peripheral devices were incredibly unreliable. We had a mighty 10 Megabytes of hard disc. In contrast, today anybody's laptop has got 500 Gigabytes on there. Those hard discs used basically the same technology as today, with magnetic recording heads flying above a disc surface, but you set the whole thing up. You had to align the heads, you had to configure the linear motors for loading the heads, and you only had to have the slightest bit of dust get in there (because it was an open system) and the heads would crash into the disc surface. So you did a lot of activity that you just don't do these days. These days, if you do have a disc crash, you just pull another one of the shelf, plug it in and away you go. So you would spend hours on the bench setting up those units. I did have one memory fault. Again this is a memory card that was a good 40-cm square thing; it probably had 28 kilobytes on it and again you could fault-find down to the chip that had failed. This was magnetic ferrite core memory as well; it wasn't chips. So it was fascinating technology to get into and you could delve into it to a level that you just never do these days.

[Part 1 0:24:53] Lee: The fact that you were breaking this new ground technologically, in the most remote part of the world, was the remoteness of the Antarctic actually a handicap? Were chaps elsewhere in the world finding the work easier than you were doing?

Pinnock: Yes, because most of the time you would just send a unit back to the manufacturer. In the UK you wouldn't dream of doing the disc alignment procedures that we did on the spinning discs. Yes, you would just pack it off to the manufacturer; they would have someone on the workbench who would turn it around in half an hour rather than the four hours that it would take me. I felt an enormous amount of responsibility because this was a colossal project for BAS. It was a bold step. This was in 1981. As always, it wasn't so much the radar that let us down. We had

enormous problems with the generator caboose. We were in basically converted freight containers, that had the equipment in. Another one had the workshop and then the third one had a two-generator diesel electric set for generating mains electricity. That in itself was the first containerised generator unit that BAS had had, not rocket science but (I will spare you all the details) we had a lot units fail in that. We had a whole string of transformers fail in it until we eventually carefully unwound one and found that it had been badly assembled in the first place. So it seemed like I spent almost as much time helping the generator mechanic who had come in with that unit, helping him in the generator shed, as much time as I spent in the radar keeping that going.

[Part 1 0:26:52] Lee: Was this a project which NASA became involved in or was that the later one?

Pinnock: No NASA were involved in this one. In fact ...

[Part 1 0:26:58] Lee: Was that lots of opportunity to get 'egg on face', then?

Pinnock: Yes. NASA were saying 'Right, ... ' We were working with something called the Dynamics Explorer satellites. There were two satellites. So we would get a list in over the telex saying 'Right, the satellite is going to be going over Halley or close to it on these times. We want you to run this programme on the radar.' And somewhere down the line, over the next year, you would know that NASA would be saying 'Right, come and tell us what you found, what you saw, to put in context what the satellite was seeing as it actually flew through the ionosphere.' DE-2, as it was, was actually flying at an altitude of about 350 km so it was right in the stuff that we were measuring from the ground.

[Part 1 0:27:46] Lee: Did you ever come up with anything, any results that took you by surprise?

Pinnock: Yes, indeed. I mentioned this nighttime feature, the mid-latitude trough, that we saw every night. By 1976 people were beginning to understand how that formed. During certain very active conditions we saw these troughs in the daytime and that was a bit of a stunner. We documented that very well and then we went on, in the early '80s, to work with some modellers at Sheffield University and showed that there were very large electric fields in the ionosphere due to the activity from the Sun, that were driving the ionosphere so fast that they heated it up, that certain chemical reactions then took place which rapidly depleted the electron density in the ionosphere. So even though it was daytime, when the radiation from the Sun is regenerating the ionosphere all the time, this electric field was so strong that it could overcome the ionisation that was being created by the Sun and blow a hole in the ionosphere. It has since been learned that you can do similar things with rocket exhaust, for example, when anybody launches a rocket up there. A slightly different reaction: that is the amount of water vapour coming from the rocket motor.

[Part 1 0:29:13] Lee: So when these surprise daytime results started coming in, were you immediately convinced or were you being a bit sceptical about whether the machine was still working properly?

Pinnock: No I think by that stage we had built up so much confidence in the machine, we knew it didn't lie. We knew we didn't have artefacts in there. So we were really quite confident about what we were seeing. It is a very good question though. Halley will always be known for the discovery of the Antarctic ozone hole. That is a whole other story and I wasn't involved with that, but I was wintering on the base with the people who were making the observations that led to that discovery. I know that when the team in Cambridge first found the ozone hole, they pored over the stuff for the best part of a year, pulling it apart, saying 'What have we done wrong? Have we changed a calibration technique? Have we changed the method of observing?' because they were thinking surely someone else must have seen this. So yes, you do have doubts. Certainly with the project that I managed in the late '80s and well into the '90s, the SuperDARN radar, we got a result that suggested again very large electric fields, far larger than we really had been expecting to see, and also very confined, very narrow channels of rapid flow, jets basically, in the ionosphere. And we did pore over the data on those for many months before we were convinced that we could see these repeatedly, saying 'Yes, we can believe the instrument.'

[Part 1 0:30:56] Lee: This is now about 1988 I believe?

Pinnock: Yes, that's right.

[Part 1 0:31:00] Lee: I have got a little note here from Amanda, saying 'It might be worth asking Mike to explain how a SuperDARN radar works, very simply.' It is not my field of expertise. You probably noticed that already.

Pinnock: OK. Well with the ionospheric studies up until 1988, we basically had a radar that most people would understand quite well. You send a pulse of radio energy vertically upwards and you reflect off the ionosphere overhead of Halley, and you can measure the electron density. So you get a profile, like a contour map if you like, of the ionosphere, but just overhead Halley. That gives you a single point in the ionosphere. We wanted to get a much bigger view of the ionosphere, and of course even the satellites flying overhead, they are just taking a slice through the ionosphere in one dimension. So we wanted this 2-D view and we got involved with Professor Ray Greenwald at the Applied Physics Laboratory, Johns Hopkins University in the States. He realised that a series of technology developments had meant that you could now use something called an over-the-horizon radar. Instead of sending your signal out vertically, you were sending it out horizontally, and then you could steer the beam around, like with the classic radar dish. So you could now sit at Halley and send out your radio signals and scan about three million square kilometres of the ionosphere over East Antarctica, and you could look right beyond the South Pole station up to say Vostok station, with this radar. What you really measured was the electric fields in the ionosphere over that area and we worked with Ray, who was really the inventor of this radar.

[Part 1 0:32:56] Pinnock: I was fortunate to go to Labrador, in Canada, and help him install the first one of these there. Then we eventually managed to get the money to take one into Halley. That was probably one of the greatest things I feel I have done with BAS, that gave me the greatest sense of satisfaction, was getting that radar into Halley. It was a huge undertaking: 16 antennae on 10-metre towers, a lot of new technology again, and then finally switching that on and just seeing the screens light

up with all the echoes coming from over South Pole when you were sat at Halley. Then the really exciting thing – this is getting into the science but realising that the direction of the magnetic fields coming from the Sun (so this is the Sun’s magnetic field), the direction of that magnetic field say rotating through 180 degrees, and seeing the response in the ionosphere over South Pole happen within two minutes. An immediate cause and effect and by that stage, by the time we were running this radar, we could be getting the data in from NASA saying ‘This is what the solar wind is doing.’ So you really had a sense of looking right out into space from Halley, which was stunning. It gave us brilliant results. There are now 24 of those radars working around the world. It was such a powerful technique. It gives you such a great view of the ionosphere and the Earth’s magnetic field interacting with the Sun.

[Part 1 0:34:40] Lee: Did BAS get the credit?

Pinnock: Yes, we did. I would have to go into a lot of details of the science, but one of the most satisfying moments in my career was someone saying ... ‘You put this picture up on the screen ...’ This was at a conference in the USA. ‘You put this picture up on the screen, Mike, and I just saw everybody around the room going “Ah, he’s got it! Yes, that’s what is happening.”’ So yes, it is very very satisfying. Yes, we did get the credit. I won’t go into all the details of how we got the SuperDARN radar, but there is no doubt at all that the Americans invested heavily in it and the reason they did that was because we had done the Advanced Ionospheric Sounder, which went in in 1981, and we had done that so well, the Americans said ‘Look, these guys can deliver.’ And to be perfectly frank, we delivered a lot more cheaply than the Americans’ contractors, because they used contractors to put it in, the likes of ITT (now Raytheon) who charge contractors’ rates whereas we did it very much the BAS/Fid way. People like myself assembled all the antennae and put them up in the air. So we had this great reputation: ‘Trust these guys. They can deliver. They get it installed’

[Part 1 0:36:04] Lee: I can’t help noticing that this great development took place after the Falklands War.

Pinnock: Yes, it did.

[Part 1 0:36:10] Lee: Is that a coincidence?

Pinnock: It’s probably not, because of course BAS’s budget basically doubled after the Falklands War. So yes, we had more money. We also got the vastly improved communications. It would be difficult to install the level of sophistication of equipment we were then getting without being able to pick up the phone and speak to a manager back in Cambridge saying ‘I am seeing this, this and this. What does it mean?’ We don’t do a lot of that, even now. We don’t but in (I am talking from the Cambridge manager’s end). We don’t but in day-by-day but there is the link there to help people out.

[Part 1 0:36:59] Lee: So this was science waiting to happen, was it? It could only really happen (a) when the budgets had been increased, and (b) the communication systems were much better?

Pinnock: Yes, and I think also we needed some of the plant, vehicle plant I mean. For example for putting up the antennae and that, we needed cranes with a 14-15 metre reach for example. We had not had those at Halley before but then the building technology for the base demanded that and that enabled us then to set the science...

[Part 1 0:37:35] Lee: Is this where your steeplejacking skills that Eric Salmon mentioned in passing came in really handy?

Pinnock: No he was talking about me being a stevedore rather than a steeplejack. No the steeplejack skills Well we don't do it this way anymore because of course ...

[Part 1 0:37:52] Lee: Health & Safety?

Pinnock: Health & Safety, yes. When we took in the Advanced Ionospheric Sounder, we thought 'We have got to put up large vertical masts to get the most out of this machine.' Now a large vertical mast had been set up in the IGY base and if you look in the Annals of IGY volumes you will see a very sad picture of a crumpled mast, and we now know that that is because ... It's not that that the mast can't stay up; it's that the stay wires which are supporting it, or holding in place, the tension on those gradually increases as the snow level increases. You have to be constantly resetting the tension, about once a month, going out checking the tension on the stay wires, readjusting them, usually slackening off the tension because the accumulating snow causes it to increase. So we worked out all these techniques and then when it came to the steeplejack stuff, we basically applied standard climbing techniques for protecting ourselves. So it was all done safely. However there was a point, I think in the early '90s, when a BAS Director went into Halley, saw these 45-metre masts there and suddenly realised for the first time that he had his people putting these up. So then there was a lot of examination of that and the upshot in the end, is that we now use professional mast erectors. We also have people seconded from the RAF who are professional mast maintenance people. They come into Halley now each summer and do the maintenance and the erection of those masts.

[Part 1 0:39:37] Lee: But prior to that, had you actually found yourself sitting on the top of one of these things?

Pinnock: Yes. I didn't find it a great challenge. Even people on base said 'How can you do that, Mike?' because it is very different from rock-climbing, because you have complete ...

[Part 1 0:39:53] Lee: Well there's no rock for a start.

Pinnock: There's no rock. You have complete exposure. You can look through what you are hanging on to because it is a lattice mast. I always found when you actually got into the work I should say I didn't do it all on my own. There was always someone up there with me. Once you got into the work, and you concentrated on it, and you are concentrating very much because you have got to work safely, for very obvious reasons, I used to very much enjoy the work. It used to be the ground crew who used to get cold first and fed up first and say 'Come on, it's time to come down. Let's go and get some tea.'

[Part 1 0:40:29] Lee: These are your basic climbing skills from your teenage years coming into play?

Pinnock: Yes, indeed.

[Part 1 0:40:35] Lee: Could the weather change between ...? There you are at the top of a 45-foot mast¹. Could the weather change by the time you got to the bottom.

Pinnock: Yes, I mean temperature inversions at Halley are very common. In fact there is a whole area of physics we study called boundary layer physics, which produces temperature inversions and anybody who has wintered at Halley, whether they realise it or not, will have observed those temperature inversions. You see miraging of icebergs out in the Weddell Sea. You also see some interesting wave phenomena with the generator exhaust, which is all part of that. Anyway, so yes, sometimes the people 45 metres up in the air, well at the extreme, could be 5 degrees warmer than the people on the ground because of the temperature inversion. Yes, it was strange.

[Part 1 0:41:23] Lee: Were there any major frustrations in all this? Was there always something nagging at you, that you couldn't achieve?

Pinnock: Certainly in '77/'78 and even in '81, we were always aware that very often we were making do, that we didn't have the exact spare that we required. So someone would go away for two or three days and design a circuit to overcome the limitations of what we had. Halley ran on dunnage, 45-gallon drums. If Halley had a shield, everybody said it would be a shield with crossed shovels on it, because there was a huge amount of 'mandraulics' went into running the place. So there was a real sense of 'Surely you can do this better.' At the same time there was a great pride in getting through and getting the job done. Now, there is no doubt that there is much more emphasis on buying the right machine for the job. I think the thing that really hit me at the end of 1978 ...

[Part 1 0:42:37] Pinnock: Sorry, start again. In 1977 we had established a remote Very Low Frequency recording station up on the plateau about 100 miles from Halley. That had been my first ever field trip. It was done at the end of April when the sun was going down. We had very few hours each day. We got stuck in a major blow. It was a real battle just to get there, to find that the wind generator that was supplying the electricity for it fractured a blade. There was nothing more we could do so it was just take that down, put it on the sledge, turn round and go back. It was quite an epic trip. It was exciting. It was my first time in the field. To be honest I was very much a passenger; I was a complete greenhorn as the Americans would say. It took us ten days. We got back. We did it. It is certainly something that has always stuck in my mind. At the end of 1978 a BAS Twin Otter flew in and one day we got up, had breakfast, got on the Twin Otter, flew up to the station, did the same job, and were back for lunch. The first trip in '77 was close to heroic (I don't want to exaggerate too much).

[Part 1 0:43:56] Lee: With a small 'h'?

¹ He means 45-metre mast.

Pinnock: With a small 'h', definitely, but it was a hard fight, and you thought 'Well actually it was that. I was glad I did it.' But if you actually just want to get the job done, then the Twin Otter was the business, taking a lot of the thrutch out of it.

[Part 1 0:44:17] Lee: But 35 years later, will the Twin Otter team talk about it in the way that you talk about your trip? The camaraderie that you can generate by a tent in a 'blow' or whatever.

Pinnock: I think people do. I think it is still a completely fresh experience, and I think that no matter how much equipment and comfort you have on base, there is still overwhelmingly a great sense of isolation and a great sense of the fact that it is going to depend on you to do it. So I think it is discovered anew each year. I sincerely hope that is the case. The people I speak to when they come back, they do still have that sense of discovery. It's different, but even today, the last time I was down at Halley, that was 2007, we were doing relief. Over the radio comes a call saying 'Right, we have got a sledge full of stuff coming up from the ship that must not be frozen' but it was on an open sledge so you have got to get it unloaded very quickly. We go out to start unloading it and the crane on the platform won't start. It fails, trips out and the wind picks up to 35 knots at almost the same time and it's right, we have got to get this stuff in. So form a chain of people, chain-gang it in, the way we always did it previously. So the technology can always let you down. You have still got to react quickly and work out other ways of doing it.

[Part 1 0:46:00] Lee: And would the Head of the Physical Sciences Division be part of that chain?

Pinnock: Yes I was. Actually I was the Head of the Physical Sciences Division in 2007 when I was part of that chain. Yes, because when you are down there, we are all issued with the same clothing, we all look alike. I try and behave alike as well. Just because I was then different from what I had been before, you don't excuse yourself from those sorts of things.

[Part 1 0:46:25] Lee: Just picking up on the difference in the team element of working in the Antarctic, do you think it has changed dramatically since the '70s?

Pinnock: Yes, I think it has. It would vary from base to base. I think the smaller bases such as Bird Island, I don't have experience of that but I suspect people might say perhaps it hasn't changed so much. At Halley there is much less base work, where everybody had to turn to, often with shovels. There is less base work. The plant and the way we are organised, we have fuel in bulk fuel tanks; we are not constantly lifting drums out of the snow. So it has reduced the number of times you have to work as a team, sometimes quite large teams: six or seven. That has reduced. I am less familiar with Rothera and the Peninsula but at Rothera the base is just so large. Even in summer you can be there for 5 or 6 days and then suddenly bump into someone you haven't seen up to that point because we can have over a hundred people there in the summer. So yes, it is a different experience now in that sense.

[Part 1 0:47:52] Lee: Just talking a bit more about the science, the ionospheric science, working there in the field, were you fully aware of how valuable or not

valuable that science you were producing was going to be in the future, or the practical application of it?

Pinnock: I think there was a keen sense of how much was still not understood. Well I shouldn't exaggerate, that developed as I got to know the subject more and more.

[Part 1 0:48:21] Lee: What, the more you knew, the less you knew?

Pinnock: Yes. It is the classic science phrase, isn't it? But also, just speaking to the leaders of that section before I went down to the Antarctic, you would point to things on the photographic records and say 'What's that?' and they would say 'Well quite frankly we don't know.' So there was a sense of unlocking the mysteries of nature. There were still significant things to be understood. It's a little bit like magnetism in that mankind has used magnetism for thousands of years. The ancient Greeks knew and observed it. Very soon we were using it for navigation but that did not mean that anybody understood magnetism one jot and it took 20th century physics before you start to even get a significant understanding of what is going on.

[Part 1 0:49:19] Lee: So was there a sense of doing the research for the research's sake? I suppose what I am trying to say is: in the modern day BAS line of study, if you are going to do research, you have to have a patent application which earns you income to pay for the research?

Pinnock: That's a little bit of an exaggeration. We still do fundamental basic science. However, what you are talking about is the 'impact agenda' which is very big with all governments not just the present government. Yes, I think when I joined, there was very much: it was basic science. Yes, we would pay lip service to the fact that mankind used the ionosphere for communication and therefore you needed to understand it, but even by the mid '70s we had probably got good enough empirical models for most HF communications. What has gone way way up the agenda, and is actually in this country, in the UK, is now really very high profile, is something we call space weather. Mankind has got a huge amount of technology flying in the magnetosphere and the ionosphere, the basic elements I was studying at Halley, and space weather is the impact of solar flares, solar eruptions on the Earth's magnetosphere and the ionosphere at the foot of it and the satellites that are flying in there. We have lost satellites because of solar flares, solar eruptions.

[Part 1 0:50:55] Pinnock: Ground based systems, long electrical power lines get huge currents induced in them during solar storms. That has burned out transformers. The likes of Canada have had 24-hour, 48-hour blackouts, in places like Montreal, from to space weather phenomena. Space weather has always been there. It is rather that, as with many other areas of modern life, man's technology has grown and grown, and now suddenly the UK is very very vulnerable to space weather. We all use sat-nav, GPS navigation. Now most of us could drive around the motorways without sat-navs but industry uses GPS for controlling machinery. Farmers have tractors with GPS's in them to increase the yields on their fields because of the way they can plough them, reap them etc. Just all the convenience of modern life ... The Americans lost a satellite possibly because of a space weather event. It is always difficult to get 100% correlation but it looked likely and suddenly all the ATMs in California packed up

because those ATMs were communicating via satellite communications, with the banks. So we have built in a huge amount of dependency.

[Part 1 0:52:26] Lee: The more sophisticated we become, the more vulnerable we are?

Pinnock: Yes. This in some ways does relate to life in Antarctica. I talked earlier on about: there was always the sense in the '70s of making do, of constantly having to re-invent things because we didn't have the right equipment. Of course we had systems that didn't have a level of complexity that prevented you doing that. I have a serious concern these days that we have a level of complexity that does readily prevent (I don't mean on the Antarctic bases; I mean in everyday life) that prevents you readily just quickly re-inventing a solution to an everyday problem. So yes, it is the level of our own complexity. I am not deriding it. It gives us great efficiency very often. I found this hotel here today remarkably easily because I had the sat-nav in the car.

[Part 1 0:53:25] Lee: What is interesting for me is this sense that BAS is discovering the science before we as mankind need to use it. The same way that BAS discovered the hole in the ozone layer before we really needed to do anything about it. BAS was working on understanding ionospherics and solar space weather before we invented the ATM, or the GPS.

Pinnock: Yes, but I think it has ever been so. If you look at lasers, lasers are in nearly every household in the country now. They are in your DVD player, CD drives, whatever, bar code readers at supermarkets. The principles of the laser, I think I am right in saying, came out of quantum mechanics in the 1930s. Someone said 'Hey, you could build lasers.' The technology to do that didn't exist until the late '50s, and even then when someone built one, it was still: 'We have got this incredibly intense beam of light. What do we do with it?' Nowadays in Japan I don't know how many hundred thousand lasers they manufacture every day. So it is often the way with science that science leads because you are uncovering new knowledge, and then people think 'What do we do with it?' Yes, sorry, your point about space weather is exactly right. The thing that has really bumped it up the agenda, for example, is the realisation that there was, if you like, the mother of all solar flares in I think 1859 and Lord Carrington², famous scientist, documented it. Because we did have magnetometers working then, we can see that it was an incredible eruption. The scenario that is facing many governments now is: what would happen if we ever had a solar flare of that magnitude again? What would be the impact on our country, and on global systems? So yes, we were doing the science ahead of where the technology has taken us and now we are vulnerable.

[Part 1 0:55:31] Lee: You mentioned at the very beginning of this conversation that you decided not to work in the defence industries and I am just wondering whether it has concerned you or worried you that the research that is being done on solar or space weather, in ionospherics, actually could have a defensive or even an offensive use?

Pinnock: Well it does and we know that ... I mean a lot of space weather research, which really kicked off in the early '90s, was driven by the US military because (a)

² Actually it was Richard Carrington, not Lord Carrington.

they realised the vulnerability of their systems and then (b) if you could explode a nuclear device in near-Earth space; that would populate the radiation belts with incredibly energetic particles that could damage anybody's satellites. So yes, it is a little bit in the realms of science fiction. Well no it's not science fiction; it's quite possible. You could do that. So military around that world have funded space weather research, but everything we do, we don't have military money in our funding. And secondly, everything we do is just published in the open literature.

[Part 1 0:56:53] Lee: Yes, but then somebody from a despot dictatorship could use it?

Pinnock: Oh yes.

[Part 1 0:56:58] Lee: Have you ever had anything of that nature from the work you have done?

Pinnock: I don't think I have. No I have not perceived that. The closest I think we are getting to it is: there is an issue... There is such a thing now as bioprospecting. It is going on around the planet to try and discover novel organisms, microbes, protein strings in nature and then using it for commercial purposes and that is getting close to the exploitation of Antarctica if that was to happen. So I think that has been discussed. I don't think there is a serious dilemma there. I think people are saying 'It's a bit like the discovery of penicillin.' If you discovered something like that in Antarctica, why wouldn't you use it for the benefit of Mankind.

[Part 1 0:57:52] Lee: Well there is a treaty to prevent you isn't there?

Pinnock: I am not an expert on this. You should ask the Environment Office at BAS on this. My understanding is that there isn't. There is a treaty to prevent the exploitation of mineral resources. That is the Madrid Protocol that was signed in the mid '90s. But I don't believe there is for bioprospecting although I know it has been discussed at the ATCM. There is concern but I think the concern is more about making sure that a big multi-national company doesn't patent it and own it. It is more that it is made available to the benefit of Mankind.

[Part 1 0:58:31] Lee: So you sense there might be, apart from the warning we were given about the hole in the ozone layer, you sense there might be something that will come out of the Antarctic in the future which will be hugely beneficial to Mankind?

Pinnock: I think there are many many things already. I think the ice cores are one of the most exciting things because the ice core record ..., and the European nations with BAS involvement have been leaders in this. The ice cores have given us incredible insight to how our planet works showing going in and out of the ice ages. OK, the marine sediment record did that first of all but the ice cores have really nailed the link between carbon dioxide and temperature of the planet over ... They go back 740,000 years, nearly 800,000 years now. So that has served Mankind incredibly well. It has told us our planet has this natural rhythm; it has told us about the natural boundaries in which carbon dioxide used to be, before Mankind started burning fossil fuels. It is still a major challenge to understand how the planet goes through those ice age cycles. We don't understand that. It is one of the biggest goals in environmental science to understand how you go in and out of an ice age. We know all the basics. There is an

enormous amount of detail, particularly the amplification of the original driver which is the Earth's orbit around the Sun. The amplification of that effect is not understood.

[Part 1 1:00:10] Lee: This is not the kind of conversation I would expect to have with somebody who trained as an electronic engineer with GEC. Are you at all surprised how your life has unfolded?

Pinnock: Absolutely astonished, in short, and I count my blessings daily even when times do get hard. No, I have been incredibly lucky and it is interesting when I go back to some of the people I was a student with, and both hear from them what they are doing and also they themselves tell me that I have got a much greater breadth and depth of involvement in my work than they feel that they have, even though they are really quite successful in their field. Yes, there has been the opportunity to get involved in so many things, and now, the position I am in now is about enabling all the science across BAS to happen. I have just recently been on a marine biology cruise to understand properly how that is done. The justification there is: if I am managing that area, I need to experience it and understand it, so yes, it is incredible opportunities.

[Part 1 1:01:29] Lee: I am not wrapping this up. I am just going to change gear and bring you back down to earth. But first I need to put a fresh disc in the machine.

Pinnock: Fine, go ahead, yes.

[Part 1 1:01:38] Lee: A monetary break.

Pinnock: Yes, fine.

[Part 1 1:01:41] [End of Part One]

[Part 2 0:00:00] Lee: This is Mike Pinnock recorded by Chris Eldon Lee on the 19th of November 2011. Mike Pinnock, Part Two.

[Part 2 0:00:10] Lee: Let's bring you back down to earth again then if I may, and let's talk about those mid '70s periods at Halley, and I was just wondering whether everybody got on at Halley as well as you hoped they might do when you went down there?

Pinnock: I had an understanding that we weren't always going to get on perfectly. You hoped and then you had to work at relationships. You hoped they would go well and then you found that you had to work at them. I think in 1977 I was learning so much, it was so new to me that perhaps some of the ... I don't know. You should ask some of the others. Perhaps some of the grit in the relationships was going over my head because I was so focussed on other things. In '78 I was aware much more of certain relationships that weren't working, certain difficulties on base, none of which were colossal but could make things tough at times. We had one individual on base who actually could be hugely entertaining and very sociable except when he had had too much to drink. An incident early in the year alerted everybody to the fact that 'Oh there are going to be problems there when that happens.'

[Part 2 0:01:49] Lee: Can you talk about that at all?

Pinnock: Yes. As I say he was a very genial, sociable chap but he would just get to a certain point in the amount of beer he had drunk where he would just switch, and he could be quite threatening. I remember being dragged across the bar at one point, just because of a comment I had made and that was March or something and I suddenly thought 'Oh we have got a problem here, haven't we? We haven't seen that behaviour before.' So although the base commander was alert to it, and we would try and prevent it happening, the fact is you can't be watching someone 24 hours a day. You have to trust people. That could put a damper, quite frankly, on the base, so people would ... If people saw [REDACTED] in the bar drinking, then they would go off elsewhere.

[Part 2 0:02:40] Lee: This was the winter, so you were down to about 20 people?

Pinnock: We were down to about 16 or 17 that year. It was a small number of people, so yes one person ...

[Part 2 0:02:49] Lee: One individual?

Pinnock: Yes, indeed. That said, it was a fairly happy year. Things worked. We got nearly all the work done. The individual I am talking about was a good [REDACTED] himself. He did good work.

[Part 2 0:03:06] Lee: Did you perceive a weakness in the BAS recruiting procedures then, because traditionally, in Bill Sloman's day, ...? I am sure rosy-tinted spectacles have been used to describe this but in Bill Sloman's day, he seemed to have a particular knack of avoiding misfits.

Pinnock: I think he did. I don't think he was 100% successful. Nobody could be. I think the strength with BAS has always been that, whether people realise it or not, you have quite a long period to observe them before finally the ship sails and you leave them on base. I am going back now to the '70s but you had the long voyage down when there was little to do. There was a bar there and certainly there were decisions taken, even in my years, of 'Right, that person isn't going to winter because we don't like what we are seeing.' On the way down or even during relief, once they had got there. So you have got that long probation period, if you like. BAS has looked at recruitment. It has measured itself against the other nations. It has looked at psychometric testing for example.

[Part 2 0:04:23] Pinnock: Actually there was a study conducted 5 or 6 years ago, with academics, and the academics themselves could not show for example that psychometric testing would significantly improve the chances of a successful winter. That was done with a very large sample, a very rigorous test. So it has relied on the interview panels being staffed by people who have wintered, who know what they are sending people into, coupled with this reasonably long period to observe people. That has got somewhat shorter because of course it is very rare now that people sail South but we do have much longer summer seasons, so you probably still have a very significant observing period of two to three months, before you are getting towards the end of February and the final cut-off to taking someone out.

[Part 2 0:05:21] Lee: But today it is still instinct and ‘seat of your pants’, is it, in managing personnel?

Pinnock: I am not sure I quite tie into it being instinct and ‘seat of the pants’. It is measuring people against known success criteria. Yes, the questioning that goes at interviews which I think is quite subtle. One of the most subtle ones, and it might sound incredibly naive, is just to ask someone, say, ‘What is a good night out for you?’ Particularly if you slip it in at the end of the interview, when they have hopefully relaxed a bit. Most of the time you will get a pretty honest answer.

[Part 2 0:06:09] Lee: Are you an interviewer?

Pinnock: Yes, I have done quite a lot of interviewing for BAS. The panels do pick up on – it is difficult to put into words, isn’t it?

[Part 2 0:06:22] Lee: And you shouldn’t give it away either.

Pinnock: No, you do pick up on the signs, and as I say, we do also still have that long observing period. It is not just done on the interview.

[Part 2 0:06:34] Lee: And because you have been there now for so long, have you noticed BAS’s attitude towards drink management changing, since the case of Jim in the 1970s?

Pinnock: Yes, I mean we now have an alcohol policy, which was never formally written down anyway in the ‘70s. I think, I hope it is still managed sensitively. It is managed much more rigorously during the summer period when we have many more visitors on base, people who are not so tuned in to base life. So alcohol is restricted during the summer season but in the winter period it is still managed pretty much the way it always has been. The bar is there; it is stocked. However the station commanders, and particularly the doctors these days, are very aware of alcohol issues, and will tackle them I think much earlier than we used to tackle them in the past.

[Part 2 0:07:33] Lee: There was a chilling moment, I think it was in the 2009 Girton Conference which I went to, when a particularly scary woman gave a 10-minute talk on alcohol along the lines of ‘You are on duty all the time. If there is a fire, you need to escape at any point...’ and the room was silent.

Pinnock: Yes, well it is very true. This is a real dilemma. I think our view of alcohol is that it is part of the social scene. It can be a social lubricant. It is valuable. At the same time the point you make: you are in the environment you are in. Fire is the biggest, potentially the most terrifying incident you can have on an Antarctic base, and you have to be ready to respond. For that reason, having someone quite frankly drunk and incapable is less and less tolerated. It really cannot happen because of that.

[Part 2 0:08:36] Lee: Tell me about the dogs. You didn’t have many at Halley but they seemed to be well loved?

Pinnock: They were yes. I was fortunate in my second winter, ’78. We only had the two brothers: Muff and Brae in ’77. In ’78 we had three new dogs come in from

Rothera: Tom, Ralph, and Nadine. So we had a team of five, which was capable therefore of pulling a lightly loaded camping sledge. They were great; they were a fantastic external focus, particularly at Halley which can become very very introverted. Having something that was outside the base, something that people could just go over to, fuss the dogs, talk to them quite frankly as well.

[Part 2 0:09:24] Lee: Why did Mike Pinnock become doggy man?

Pinnock: I have always loved dogs. I feel I had great affinity with the dogs. I also just thought it was at the heart of Antarctic travel really. I did try manhauling. My view is that it is the most stupid way of travelling that anybody ever invented. The dogs were a fantastic way to travel. Yes they are slower than skidoos but still very much at the heart of Antarctic travel. A very romantic way of travelling perhaps, but great fun.

[Part 2 0:10:00] Lee: Skidoos don't normally go round fighting each other, do they?

Pinnock: No. Any dog man will tell you that huskies just live to work, eat and fight and are happy to do it in any sort of order and yes, they will catch you out at the wrong time. The coldest trip I ever did into the field, we didn't plan it this way but we did get caught out at -40, and just as we stopped to set up camp, the dogs started a fight. I think the red mist came down over me at that point. I waded in to start pulling them apart and I actually tripped and fell right into the middle of them. I wouldn't recommend it as a technique but the dogs were so startled, the fight broke up there and then.

[Part 2 0:10:48] Lee: Have you ever felt threatened by huskies?

Pinnock: No. That is the astonishing thing. Some huskies can look quite wolf-like and I think I was always aware of that wolf ancestry in them. When you hear them howling on the span it does immediately come to mind, that ancestry. No I never felt threatened by them. I think they had incredible loyalty and very very hard-working, very keen to work. So no, I never felt threatened by them at all.

[Part 2 0:11:20] Lee: You say that '78 was a good year for science, and we are talking here about fairly simple science, before the advent of the more recent technological things, flying met balloons?

Pinnock: Oh yes. It wasn't to do meteorology. I was trying to prove that the antenna array we were using was very inferior to what we could get by building a vertical mast.

[Part 2 0:11:48] Lee: This was before the vertical mast?

Pinnock: Before the vertical mast. Before we took the digital radars in. So I spoke to the met people and one very calm September day we laid out a very large (200 metre) wire antenna and flew it from a hydrogen-filled met balloon. We created the equivalent of a 40-metre mast using a met balloon to lift the wire into the air and then we ran the ionosonde for several hours on that and switching in and out the balloon antenna system and the normal antenna system and showed quite conclusively that we got a huge signal-to-noise ratio gain. So really quite a modest thing but it was very

typical of the sort of innovation and thinking that went on on base on how you could do things differently and improvise them.

[Part 2 0:12:47] Lee: Can you remember how you conceived that plan? Was it an enlightenment moment in ...?

Pinnock: It was almost certainly a smoko conversation, of saying 'This has got to be wrong, these antennae we are using.' I won't go into all the technical details but just looking at them thinking 'That's not right. That's not the way you should do it.' So probably just whiling away at coffee and thinking 'Could we build a tower? Well we are not going to build a Dexion tower 30m high; even Dexion can't do that.' Then I think it was me that said 'Hang on. What weight can you lift with a met balloon?' We knew that. We got the specification and then just laying the copper wire out basically and saying 'Yes. Let's just wait for the right day when there is little wind and fly it.'

[Part 2 0:13:38] Lee: Is this something you repeated several times?

Pinnock: No, we only did it the one day but that was sufficient. We sent the records back. In fact we had the Head of Division come in the next relief. This was September; he came in in December and I showed him the records and he sent a telex out immediately to the Head of Section, saying 'Mike has shown clearly that you are going to get much much better results doing it this way. So we should plan on putting vertical masts in for the new radar when it came in.'

[Part 2 0:14:13] Lee: So that's when the Dexion arrived is it, or Meccano? I am interested in the process between that revelation with the balloon and the 45-metre mast.

Pinnock: That was '78. It was the beginning of 1981 when the new radar came in and with it all the lattice sections to build the masts. But that sort of idea was very typical of smoko conversations. Any Fid will tell you there was always a 'What if ...?' or 'How would you get to the Pole from Halley unsupported?'

[Part 2 0:14:47] Lee: Can you think of another example? Does anything else spring to mind, where a smoko type conversation led to a successful ...?

Pinnock: I wasn't involved at all but I think the most stunning 'Fid gob', as it would be referred to, that was done at Halley has to be the generator set-up in Halley II. There was a paper published in the IEE journal in this country about this, where I think it was a couple of the generator mechanics and probably one of the beastie men³ built a mixture of mechanical engineering and electronic engineering which received the radio signals from the Rugby transmissions (not so far from here), used them as a frequency standard, and then controlled the frequency of the generators on base. And it worked; it was a brilliant demonstration and it had a very practical application because in those days, all the data was recorded on chart recorders and the chart recorders had electric motors that depended on the frequency of the mains electricity they were being supplied with. So if you were running at 48 Hz rather than 50 Hz the

³ It was Bruce Blackwell (generator mechanic), John Nockels (ionosphericist) and Andy Smith (physicist).

motor ran slower and if it was running at 52 it ran faster. Therefore you got a varying timescale on your chart record, which was not good. It probably, in all honesty, was not absolutely critical for the science. But it was just 'Hey, there is this challenge and we could do this. Let's.' That was an astonishing bit of engineering. I cannot remember the names of the guys but if you go onto Andy Smith's Halley website, it is on there. Fantastic.

[Part 2 0:16:32] Lee: The culture of BAS at the time was that if somebody comes up with a half-sensible idea, let's go for it?

Pinnock: That was almost certainly done without any consultation with Cambridge at all. Sorry, it wasn't Cambridge; it would have been London in those days. I am sure they didn't send ... That was in the days, I am not even sure they had telex communication with Stanley; it would have been Morse code probably, Morse key⁴. So I doubt very much if they were consulted; they were presented with a *fait accompli*.

[Part 2 0:17:02] Lee: Before we started recording you were about to tell me about how you felt the improvement of communication had affected life in the Antarctic, either for good or bad.

Pinnock: I have mixed feelings about it. I think my feelings are completely irrelevant. The fact is the people going down there now expect a level of communications. So it is what it is. They expect that and that is because they live in 2011. But yes, it has been fascinating seeing the whole development of it.

[Part 2 0:17:36] Lee: From Morse to ...?

Pinnock: Well, when I went in they were using telex traffic. They would use the Morse key very often for sending out the meteorological observations, particularly the last one of the day, at nighttime which would be under difficult propagation conditions from Halley. So yes, it has gone from HF telex – very slow, 25 baud/ 50 baud – through to satellite communications. Actually still a remarkably low data rate compared to what you have in your house even. Rothera have 384 kilobits per second. We are not even anywhere near 1 Megabyte⁵ broadband. However it definitely has reduced the sense of isolation. I went nearly all of my first two winters with little or no knowledge of what was happening in the rest of the world. I would tune into the World Service occasionally but it became less and less relevant. Whereas now, people can log on to the BBC website any time of the night or day down there and so I am sure they do. There must be less isolation. It can equally though make it very very difficult. If something very bad is happening (you think of the July 7th bombings in London) and perhaps you might know that your relative travels on the Tube every day. So yes, it puts an additional set of pressures on having that immediacy of awareness of what is happening in the UK or the rest of the world come to that.

[Part 2 0:19:22] Lee: The classic Fid tale from the '60s and '70s was that they tended not to actually care much about what was happening anywhere else in the world

⁴ There were telex communications by 1971. Nevertheless, Mike is right. HQ were not consulted.

⁵ He probably means Megabit per second.

because they just didn't know, but from the interviews I have done, the tipping point was the Cuban missile crisis, when the Fids who were aware of that on the shortwave radio or World Service wondered whether there would be a planet to go back to when their time in the Antarctic finished.

Pinnock: Yes, indeed. Yes, elements of Neville Shute's *On the Beach*. I remember we got very interested when there were rumours that the South Africans might have exploded a nuclear device in the South Atlantic. It was never proven. Probably they didn't; I don't know. But I remember that coming to us over the BBC World Service for example. Nowadays, of course, BAS subscribes to a news synopsis and the comms manager on base picks that up every day. It is just automatically printed out and goes into the dining room. So people do just pick it up and read it as well. It is like a newspaper. It is not a newspaper but it is like a newspaper delivered to the base every day. I do still see a lot of people going 'Well, I am so far from it, even today, I don't have to pay attention to that.' I think it is in the realms of personal relationships that I have the biggest mixed feelings about it. When I wintered, yes, we had the 'Dear John' stories but there was little prospect of carrying on any sort of meaningful deep conversation with someone you had left behind in the UK. Now you can, but I don't think the success rate of those relationships is any higher and yet you can spend hours and hours speaking on the telephone for remarkably little cost.

[Part 2 0:21:20] Pinnock: There was a period, when the satcomms first came in, when they cost something like £5 per minute if I remember correctly, and you would get someone who had girlfriend troubles racking up a bill of two or three thousand pounds. Everybody would wince and very often it did not save the relationship. My wife and I have gone through this whole ... because I knew my wife from when I first went South to: we are still married now. It is interesting: we are rather rooted back in the 1970s in that she does miss me when I go South but she says 'Look, I have got my head around it. You are going to be away. The last thing I want to do is to have you speaking to me every day and reminding me of the fact that you are not here.' So we do speak. We have got email which is fairly frequent, but we speak remarkably little: one or two telephone conversations in a two month trip South now. We are actually most comfortable with that and I respect Liz's views on that, saying 'I don't want it rubbed in my face every day that you are away.'

[Part 2 0:22:29] Lee: Is BAS actually, in an organised way, observing all this, or is it just simply anecdotal?

Pinnock: Observing it?

[Part 2 0:22:37] Lee: Noting whether people's relationships break up?

Pinnock: No it isn't. Anecdotally people in HR will often become aware of a situation. The station commander will sometimes, very often, be aware of it. I guess if you went through the station commanders' reports (it is not something I have done) it would be interesting to pull out the comments on communications, particularly the progress of satellite communications and how that has impinged on the base. That would be very interesting. I don't know how much of it is documented; that is the problem.

[Part 2 0:23:17] Lee: It is always going to be anecdotal, isn't it?

Pinnock: Yes, it is.

[Part 2 0:23:20] Lee: I remember some of the earlier Fids I have interviewed have been thrilled by the fact that the bosses in Cambridge couldn't get hold of them.

Pinnock: Yes.

[Part 2 0:23:28] Lee: They had a great deal of autonomy that may no longer be ?? [inaudible].

Pinnock: No I think there is still a great deal of autonomy. The line managers in Cambridge will typically now have a conversation, a scheduled conversation, once a month with the winterers. There is often not time in summer; it is often done on an 'as needs' basis. But it is only about once a month. That might last an hour. Because so much of the data is coming back over the satellite communications, the scientists can readily pick up on when something is going wrong. That is one of the great benefits of the satcomms. We have enormous pressure these days to deliver much much quicker. When I joined BAS, there was a feeling of 'Look, you are putting a brand-new experiment into the field. You will spend the first year getting it right. Let's hope by the second year we have got a nice stream of data.' These days very often we are funded on three-year grants. It goes into the field and it has to work from Day 1. So you have got that real pressure to deliver, and having the data come back immediately, sometimes in real time, is a great aid to that. But there is still a high degree of autonomy, I think, on base.

[Part 2 0:24:50] Lee: Whilst we are talking about how things have changed, how about cuisine?

Pinnock: Cuisine has changed enormously. The days of Grant's Stewing Steak (once eaten, never forgotten) ... The very best cooks, of course, could disguise the Grant's Stewing Steak, fifteen/ sixteen different ways, and make it vaguely palatable. These days, though, very very good. Huge ranges of frozen food and frozen food that is properly stored. In my winters we started bringing in more frozen meat but we did not have freezers. We were keeping them, the ice cave at Halley would sustain about -10C not the -18C that is optimum. We still have a problem with cheese; it is difficult to keep that through the year and you have got to keep it at +4C/+5C. Much greater variety of food. There is still the hardy perennial that fresh fruit and vegetables, fresh milk rather than powdered milk, are absolutely craved still by winterers. Because the aircraft are getting into Rothera and Halley really quite early in the season, October or certainly November for Halley, you are getting a supply of fresh fruit and vegetables there appearing earlier and they last longer through the summer. But you still have the winter period basically without the fresh fruit and veg.

[Part 2 0:26:25] Lee: Are the planes getting in earlier because the Antarctic is warming up, rather than they are just better ?? [inaudible]

Pinnock: No, they are better designed. Greater capability, navigation of the aircraft. Two things I think: navigation and the weather forecasting. The weather forecasting

has improved out of all recognition. Satellite imagery has helped enormously. We now have a professional weather forecaster at Rothera during the summer season who feeds all our operations with data. And the navigation: even when I was first flying in the Twin Otters we had just got INS (inertial navigation system) in, which was a huge step forward. But GPS takes you a step further, gives you much more reliable ...

[Part 2 0:27:14] Lee: Travel actually on the ground though, two chaps out in the field, is not quite what it was, is it?

Pinnock: It hasn't changed hugely. It is still a skidoo and a sledge. I think all the elements would be readily recognisable by anybody from the '60s and the '70s. The skidoos are more reliable. We have just gone to our first 4-stroke skidoo set-up which gives great efficiency as well as a much better unit. A lot of that is still recognisable. All the camping gear is instantly recognisable; that really hasn't changed. I haven't been in the field since '81, apart from camping up on the ski-way for field training at Rothera. Speaking to the people who are in the field, we still do have 2-man units working deep field, places like Rutford Icestream. I think their experience would be recognised by anybody from the '60s. They might not recognise some of the scientific equipment that is being towed behind the skidoo or mounted on the ice, but everything else they would recognise, and you are still out there on your own. Yes, an aircraft probably could get to you inside 12 hours but for long periods of time you can be on your own still.

[Part 2 0:28:45] Lee: We have talked about climate change briefly but the repercussions of climate change, the way the animal population or the bird population is reacting to what is happening, and you must have noticed huge changes.

Pinnock: Well anybody in BAS who has been going down over the last 25-30 years can readily see the changes. I notice them particularly around South Georgia, the glacial retreat in areas like the back of Stromness that I was looking at just last January. The northeast side of the island, you can just look at the rock and know that it was ice-covered some of it 25-30 years ago but now it is very exposed. It has all been well documented. It can all be well measured by satellites these days. But down the Peninsula you can see the same. Of course the ice shelf collapses have been the most, biggest impact, most visible areas and now the acceleration of the glaciers behind them is being measured. But yes you can see it would be a great exaggeration to talk about the 'greening' of Antarctica, but *Deschampsia*, the grass, is moving south down the Peninsula.

[Part 2 0:30:05] Pinnock: The fur seals, not because of climate change but just their own population dynamics, have made a phenomenal recovery from having been thought to be nearly extinct in the early 1950's. There are beaches now on South Georgia which I can remember walking along actually even as recently as, say, 1994. I was back there this year and I wouldn't want to walk through that beach. It would be a nightmare trying to fend off the fur seals. There is going to be a census published of the fur seal populations shortly. I think we are talking about something like 4 or 4½ million fur seals. Don't quote me (I am not an expert in this) but I seem to remember when I first came into BAS, someone saying it was thought at one time that they might be down to 50 pairs. And those fur seals are there at Signy, in their thousands. They even turn up right down at Rothera. And then you see other things happening.

We are losing some penguin colonies because of the lack of sea ice or reduction in sea ice on the Peninsula. So yes, there is a lot of very visible changes. You still get a high degree of variability which the old Fids would recognise. We have had several years, until just this winter, we have had very little sea ice at Rothera. We were greatly restricted in travelling. Then just this winter we have had a great sea ice year. Travelling has been a lot easier. They have had to be cutting holes to do the diving to get through the sea ice.

[Part 2 0:31:51] Lee: One of the bones of contention, it seems to me, in some of the interviews I do, is to do with waste management. Everyone can understand why there is now a very strict waste management regime, but actually the impact of 50 people in a hut in the Antarctic is neither here nor there really. Where do you stand on that? Is waste management over the top, or is it ...?

Pinnock: No, I don't think it is. I know what they mean and I think also if you speak to people who ... Quite frankly waste management went through a very rapid evolution in the 1980's and into the early '90s and when we first brought in the new regime, it was extremely unpleasant to be perfectly honest because we were not fitted out to do it well. Now the ships and the stations, as they are redesigned and they are rebuilt, have the waste management facilities built in to handle them. So it is a lot less unpleasant. The ship, the *Bransfield* in particular, I remember the captains being furious and referring to their holds being turned into a garbage ?? [incomprehensible] on the voyage north. That's what I mean by recognising it was unpleasant. However it is a slippery slope. Once you start saying 'Come on, that little bit doesn't matter. Just throw it over there.' you end up with some of the pictures that we have seen from Finn Ronne's base on the Antarctic Peninsula.

[Part 2 0:33:22] Pinnock: Some of the pictures, I have to say, from McMurdo: it's not true now but some of the pictures of McMurdo in the 1970s with garbage heaps in the pictures. Just horrendous. I think also, whether we like it or not, there are many many more visitors to Antarctica and they actually come in with a preconception that this is a completely pristine environment. It is one of the best managed spaces on the planet in terms of waste management. So there are other people looking at us now and expecting us to stick to these standards and we absolutely ought to. I think also we need it for the science. If you take somewhere like Rothera, yes we have got our sewage plant in there now. We have got all the waste management that goes on. That is essential, for the marine biologists are looking at organisms and the impact of climate change on them. If you then had a very high level of human pollution going into North Cove or South Cove, you wouldn't be able to separate out the impacts of pollution and climate change. So some of the science demands it as well.

[Part 2 0:34:38] Lee: Yes. You mentioned about tourists and I wasn't quite clear whether you liked it or you didn't.

Pinnock: Well again, it is a reality. It is a fact. I think I have gradually become convinced that it is probably a good thing, that most of the tourists who go down there come back as ambassadors for Antarctica. And also, IAATO, the trade organisation, works to very high standards. I have seen it first-hand. In fact sometimes I think they could teach us one or two things.

[Part 2 0:35:12] Lee: So what were your fears when you were ... You say you have come to the conclusion that ... What were you worried about?

Pinnock: I think we were very worried about the impact of tourists landing on one or two easily accessible places, and hugely disturbing wildlife. I think there is still a major concern about the potential for an environmental disaster if a cruise liner hits a rock and spills oil. We have had one sink; I can't remember which one it was, but yes, we have had one sink⁶. Fortunately the oil crisis that might have come from that didn't materialise because the weather quickly broke the oil up. There is also a real concern about SAR (Search and Rescue) under those situations. At the moment the cruise liners that are going down there are carrying numbers of people that we can just cope with. Even then, when rescues have had to occur, we have had tourists sleeping in gangways and corridors on ships and whatever. There is a concern that if we went to a liner that had 3000 people on there, the local Search and Rescue, which means BAS and whoever else could turn up, just wouldn't be able to cope. But that hasn't happened and I think IAATO are alive to that danger. So I think it was the impact. A lot of people on base hugely enjoy the tourists' visits. They can be a real highlight. Yes they can be a glimpse into how the other half lives, if you have got \$20,000 throw away on a holiday. A lot of the base members hugely enjoy the tourist visits.

[Part 2 0:36:58] Lee: Let's talk about women then, because we talked earlier about how relationships can actually collapse because of separation from ones back home. But I am increasingly meeting Fids who have married other Fids.

Pinnock: Yes, it definitely happens. If you are going to put women on base, it's Nature. That will happen.

[Part 2 0:37:17] Lee: Tell me about the evolution of your thinking over that period, immediately after Dick Laws really, when ... He was firmly against it and then suddenly it happened, well slowly it happened.

Pinnock: Yes. I think it did. I think I would give David Walton, who was Head of Terrestrial and Freshwater Sciences at the time and was on the Director's Committee. As I recall it, I remember him chairing a working group, a committee looking into women wintering in Antarctica, and David really championed it and said 'Yes, there is no reason why you shouldn't do this. There were straightforward practical considerations. I have to say, Technical Services (building side) in BAS took those on, and from that point on, whenever they were refurbishing or rebuilding a base, started having two bathrooms, whatever you required etc. So we quite quickly got to the point where I think nobody had any argument against it. There was just a real nervousness about it I think. There was a sense of 'This has to introduce another dynamic, potentially another problem, to a base. Why do you do it? It is a difficult enough place anyway. Why do it?'

[Part 2 0:38:28] Pinnock: That said (because I was in junior management at the time) and I was very aware that the people on base were very very keen to have women wintering. I remember going in one year particularly, to Halley. We had just had the first woman scientist coming on to the base just for the summer, and I was hugely

⁶ It was the MS *Explorer*, in 2007.

impressed. The guys, they had removed all the pin-ups from the public places anyway; had all been removed. Certain other material had been removed, and they made that woman very welcome. There was a great deal of respect for what she was doing science-wise etc. The Fids wanted it. When it happened, I think it has been a great success, from what I have seen of it at Halley. There have been problems, of course there have. I personally have not had to deal with any of those as a manager but HR have, but I think it has been entirely for the best. First of all we actually get very good people who do the job very well. I mean women sorry, not people.

[Part 2 0:39:47] Lee: Women are people.

Pinnock: Yes. I didn't mean ...

[Part 2 0:39:51] Lee: I know what you mean.

Pinnock: We were ignoring 50% of the population which is indefensible. So yes, we get people who do a very good job. I think it has reduced some of the 'Rugby Club' atmosphere on base. It has made it, I find, a much more civilised environment.

[Part 2 0:40:11] Lee: It is interesting ? [incomprehensible] fascinating to see the changing mores and attitudes over the years. I just wondered whether the Antarctic was about a couple of years behind the rest of the planet with attitude change?

Pinnock: I don't think so. One of the great strengths of BAS is of course that we have this induction, of a complete new set of people every year going down there and therefore you do take a cross-section of, I was going to say UK, increasingly it is European society these days, down there. So you do get a snapshot and you do see the changes. The '70s and well into the '80s, was an incredibly hairy period, head hair and beards etc. It was interesting in the '90s, probably the late '80s and '90s, people became very very clean shaven. In fact it went the other way. Very often some of the young men seemed to be shaving their hair off completely as an experiment and letting it grow back. That is a straightforward physical thing. I think young men have been much more interested in their own health and fitness. There are now gyms on base and they are used, I would almost say religiously. So there has been different changes in attitudes definitely to tradition and authority etc. I think my view is up into the '70s, people tended to think of an Antarctic base as quasi-military perhaps. It wasn't in any way at all in fact.

[Part 2 0:42:00] Pinnock: The base commanders had very little outright authority, certainly not the sort of authority an army officer has. They led by strength of character. There was so much Navy slang. It was very interesting in the '80s and '90s, I saw a real rebellion against that. In fact in winter in 1981, there were several characters who deliberately rejected quite a few of the traditions. There were two people who refused to make Midwinter presents They weren't doing the traditional thing. I think secretly afterwards ... In fact I had a conversation with one of them. They said they were really quite silly; they had cut off ... They now see it as something quite valuable. But that was around; there was that attitude. And a great emphasis on 'Oh we are not interested in all the Old Boys stuff, and even the BAS Club and whatever.' Interestingly I think since 2000 and onwards I have seen a return to much more interest in what it was like in the old days. Certainly when I go down

now, it is not just because of my grey hair but I do get asked much more frequently now 'I read in this trip report you did this. Tell me about that.' And I believe we are seeing more people from this era joining the BAS Club and staying involved with it. So things go in cycles.

[Part 2 0:43:27] Lee: Where do you pray in the Antarctic?

Pinnock: I used to walk out onto the 'bondu'.

[Part 2 0:43:33] Lee: What's the bondu?

Pinnock: Just out onto the snow surface. I think it is a South African word but at Halley we talk about the bondu as being the ice surface. I used to like to walk to the south of base, particularly if there was an aurora in the sky, and I would pray there.

[Part 2 0:43:51] Lee: There is no church or chapel there?

Pinnock: I experienced that with South Africans. I did a summer with the South Africans installing a radar at their new Sanae base at Vesleskarvet and they actually held a service on Sunday and I sailed out on a South African Defence Force vessel and they actually had a chaplain and he would hold a service in the helicopter hangar rather than ...

[Part 2 044:19] Lee: Is this something that BAS might do, at the moment?

Pinnock: No. I think there is quite a lot of resistance. I have met with fellow Christians on base and we have held an act of worship on a Sunday. Some fabulous ones: I can think of one recent one on top of Rothera Point on Sunday morning. But I think, again, the attitude on base reflects the attitude of British society. 'That's all very well. You go and do that. That is your personal choice, but don't inflict it on us.' No it is worse than that. 'Don't even make it that public. We don't want to go past a room and be aware you are in there praying or something.' Maybe I am being over sensitive but I do get that sense of 'If you want to go and do that, fine. Go away and do it but don't impinge it on us.'

[Part 2 0:45:09] Lee: Where do you see BAS in a few years' time? Is it in decline or is it going to rally? Because it is under attack, isn't it, like most institutions at the present?

Pinnock: It is. This very week, that is far far more topical that you probably than you probably even have a hint of when you asked that question. BAS, along with all UK science, through to the end of this Comprehensive Spending Review which is '14/'15, is going to be incredibly squeezed. We will have to see some reduction in activity, there is no doubt about that at all. However UK Government still wants the presence in Antarctica, which is great. That does create a significant problem for the BAS budget, in that we have got to stay in Antarctica, maintain the presence, but we have got a reducing budget. Something has got to give and it is going to be the science and it is going to be some of the logistics as well. So the next three years are immensely challenging. I am probably speaking as a BAS Board member here now but we sign up to that. The country is facing a very very hard time and science has been treated

generously compared to nearly every other are of the public sector. That doesn't get away from the fact that we have got millions of pounds to trim off the budget, so it is going to be difficult.

[Part 2 0:46:38] Pinnock: We are very much focussed on trying to maintain the breadth of science. BAS for a long time now has not done esoteric Antarctic science, i.e. 'because it's there'. It does science that is of global relevance. I have given you illustrations earlier on: the ice cores I think are a spectacular example. But the melting of many of the glaciers, the Pine Island Glacier melt rate, the potential for global sea level rises is really threatening. So we need to maintain that breadth of science and we need to maintain the interdisciplinarity of the science. The Southern Ocean is one of the largest carbon sinks in the world. We don't understand it; we can barely measure it but that bold top-line statement is true. To understand the future amount of carbon the Southern Ocean will be able to draw down, you need physical oceanographers, you need biologists, you need chemists, you need bio-geochemists, you need climate people, you need all those together.

[Part 2 0:47:47] Lee: Do you need BAS?

Pinnock: Yes, very much so.

[Part 2 0:47:50] Lee: BAS will still be there in 10 years' time?

Pinnock: Yes, definitely. BAS is still going to be there in 10 years' time. It is going to be a fight to maintain that interdisciplinarity of the science, but we are very firmly focussed on doing that.

[Part 2 0:48:02] Lee: Can we end on the 'Brian Rix' moment?

Pinnock: The 'Brian Rix' ...? Oh [laughs].

[Part 2 0:48:07] Lee: Losing your trousers?

Pinnock: That's a good one to end on, yes. This was in 1978 when I was in charge of the dogs and one of the new guys on base, who had arrived at the beginning of '78, said that he was very very keen on learning to run the dogs. Now any of the dog men will tell you that the dogs were incredibly sensitive to voice, to tone of voice. I guess it is authority. I wouldn't claim to have been a great dog driver but the dogs generally did what I wanted. I knew the way this chap spoke. He was very softly spoken with a slight hesitancy at times as well, but the dogs were likely not to have a great deal of respect. I kept fobbing him off but anyway by March I said 'Fine, you come out with me.' I said 'Look, this is what we do. As any dog man will tell you, when you start off, the dogs are just wild with enthusiasm and unless you get a clean getaway, a fight will start and it can ruin your day.' So I said 'Look, we have got to get away very quickly. Once we have got the last dog clipped on the harness, I will run to the back of the sledge, pull out the ice axe, "Hup, dogs, away!" and we will charge off.' I said 'I will let them run to the base perimeter and then you will start to hear me give the commands that bring them under control, and we will go down to the coast.'

[Part 2 0:49:24] Pinnock: So we did that and Tom sat on the sledge. OK, this was my second winter and I always used to keep a complete spare set of clothing for when we went out on the field trips because that kept you warmer. So the clothes I was wearing were over a year old, were very worn and threadbare and OK, I hadn't been doing my housekeeping, needlework. So my trousers were actually held up with a bit of string. As I ran to the back of the sledge, the string holding up my trousers snapped and my trousers fell down around my ankles. This happened after I had pulled the ice anchor out. So the dogs charged off, with me lying flat on my face. We had the trail rope on the sledge. I automatically grabbed the trail rope out of instinct at which point I then found myself being dragged across the bondu with all this snow and ice balling up between my legs, and my trousers around my ankles. After a while I thought 'This is very painful, very cold. Stop it!' So I let go of the rope at which point of course, Tom and the dogs just charged off into the distance.

[Part 2 0:50:36] Pinnock: Tom then, to his alarm, sat there with the dogs and sledge went through the base perimeter and he thought 'Well I thought Mike said he was going to get them under control.' He turned round and realised he was completely on his own with this dog team. There was someone on base who was working outside and he collapsed in so much laughter, I think it took him a full five minutes, because he had seen all this happen, it took him five minutes before he could get a skidoo started and dashed off across the bondu. As he drew level with the slide, this chap was sat on the sledge was saying [in a quiet voice] 'I say, Ah now, ah now.' The dogs were just head-down, charging away. So anyway the guy on the skidoo managed to head the dogs off and got them under control.

[Part 2 0:51:23] Lee: You had become part of the legend of Antarctica?

Pinnock: Yes.

[Part 2 0:51:27] Lee: Mike, it has been a real pleasure. Thank you very much indeed.

Pinnock: Thank you, Chris. It has been very interesting.

[Part 2 0:51:31] [End of Part Two]

ENDS

Possible extracts:

- Eric Salmon. [Part 1 0:05:49]
- The complex ionosphere in the auroral zone. [Part 1 0:07:38]
- Attitude of the support staff to science. [Part 1 0:13:24]
- Ten days rolling drums. [Part 1 0:14:53]
- Nighttime sounds of bolts shearing. [Part 1 0:18:26]
- Maintaining 1980s era disc drives. [Part 1 0:23:12]
- How a SuperDARN radar works. [Part 1 0:31:00]
- Health & Safety: erecting 45-m masts. [Part 1 0:37:52]
- Fids' make-do attitude. [Part 1 0:41:23]
- Camaraderie on base. [Part 1 0:44:17]
- A problem drinker. [Part 2 0:00:10]
- Recruiting the right people. [Part 2 0:03:06]
- Mike Pinnock, doggy man. [Part 2 0:09:24]
- Aerial lifted by met balloon. [Part 2 0:11:48]
- Generator synchronised to Rugby. [Part 2 0:14:47]
- Pros and cons of improved communications. [Part 2 0:17:02]
- No more Grants stewing steak. [Part 2 0:24:50]
- Effects of climate change. [Part 2 0:28:45]
- Waste management 'over the top'? [Part 2 0:31:51]
- Attitudes to women wintering. [Part 2 0:37:17]
- Lack of facilities for religious worship. [Part 2 0:43:27]
- Losing his trousers. [Part 2 0:48:07]