

INTERVIEWEE: BARRY HEYWOOD

Edited transcript of interview with Barry Heywood conducted by Chris Eldon Lee at his home in Oundle, Northamptonshire on 4 September 2009 . Transcribed by Elizabeth Edwards, [Disc 1 - 25.05.10].
[Disc 2 – 17.06.10].

Disc 1, Track 1 [00.11min]

Barry Heywood : Barry Heywood, baptised Ronald Barry Heywood, because that was a family name and my Dad was Ronald Heywood and his Dad was Ronald John Heywood etc. I didn't have any sons so that crushed that. I was born in Castle Gresley and that was on 28 September 1937, which seems a long time ago now.

Chris Lee: *So you're Lancastrian by birth?*

Barry Heywood : Well, not by birth, no. I'm a Derbyshire lad by birth. It's just that the family originated, on my Father's side, from there. But there's Welsh blood in the family, because his Mother was Welsh speaking and came from Bagillt in Flintshire and it was the pressure of seeking work that moved them from the Vale of Bowland to Flintshire, from Flintshire to the Peak District and from the Peak District to South Derbyshire, and that's where my Mother came in, who was a Leicestershire family, and her family came from Breedon over the centuries, literally. If you go to Breedon on the Hill, you'll find graveyards almost full of Bradburys. My Mother always used to say that once they started quarrying away on the hill on which the church was built, it was only the Bradbury tombstones that kept the church up [laughter].

Chris Lee : *Were there any hints of your future career in your childhood?*

Barry Heywood : Well, like all children at that time, you know - we were born before the War - it was a period of austerity, in the War and after the War, I mean, families were very poor. Shortly after I was born, my Father was ill for seven years with kidney trouble and my Mother brought us up on, literally, about five bob a week. And so we found our entertainment by walking and being outside. I mean, I used to get a skelping off my Mother, not because I wouldn't go out, not because I was watching television, but because I would be out from eight o'clock in the morning until almost after dark and she'd wonder where I was, but me and my mates would be out there and we used to scrump apples in season and dig up potatoes and turnips and everything and just eat them raw, you know go out all day. And of course, we were so close to the Peat District and all the walks round there. And also, cycling. I remember forming a cycling club with a couple of friends and we used to cycle all over the country, and so, in a sense, I've always liked to be out and be very active. I didn't think about the Antarctic at all, I mean I was brought up on Rider Haggard and I'd read about Scott, of course, but when I went to University my thoughts were turned towards Africa. But, of course, during my period in University the political situation in Africa, any decent person would rebel against it, and so I lost interest in Africa. I was doing research in Birmingham and I went on a climbing holiday in the Cuillins in Skye. Coming back – well, what happened was that we were destined to come back on the Saturday, and the Saturday was a very wet and windy day and a couple of blokes went climbing on the Cuillins and its gabbro, which is like soapstone when it's wet. It's good when it's dry, but when it's wet it's very, very slippery.

And they peeled off and one bloke was seriously injured, and they came down to where we were camped and asked if there were any volunteers to help them to bring this bloke in. And my friend Frank and I, being that we were both six footers, we volunteered and, of course, by the time we got this bloke down, it was rather late, so foolishly we decided to drive through the night. I drove for the first stint and we got to the outskirts of Lockerbie,

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and then Frank took over and, sadly, fell asleep at the wheel, veered across the road, was hit by this flatbed lorry with a trailer, which was carrying about twenty odd tons of cement in sacks on it.

Frank was killed, I was caught up on the tarpaulin hook of the lorry and I was rolled between the two and left for dead on the side of the road, but had the good fortune to groan on the way to the morgue, so they whipped me into hospital in Dumfries, where I spent the best part of six months being put together slowly, bit by bit. I was very fortunate actually, because there were only five fasciialac maxillary surgeons in the country at the time and one happened to be in Dumfries, so although I've got a silver plate, well metal plate, in the jaw here, and lost most of my teeth and was badly smashed up, he was able to rebuild my face so that there wasn't too much disfigurement, although for a long time I thought my jaw was on one side.

When I came out of hospital, I had to go to Birmingham Hospital every week to have a new denture made that gradually swung my jaw back, because on this side there's no joint, so it's held in with the tendons and sinews, you know, to hold it in place.

Chris Lee : *How old were you at that point?*

Barry Heywood : Good question. About twenty one, twenty two, I think.

Chris Lee : *Still at university?*

Barry Heywood : I was doing research there in insect neurophysiology. I found I was having to do some very delicate operations, you see. I used to use the same sort of scissors and tweasers and things that eye surgeons used and when I came out, my hands were like this, you know, and I couldn't do that. So I was advised to write up my work for an MSc, which I did, and then I was looking round for a job. But it just so happened that the Society for the Advancement of Science was meeting at Birmingham, and our Chancellor, who was Sir Raymond Priestley, came there. He linked up with a chap called Bill Sloman, who was then the Institute Secretary of the Falkland Islands Dependencies Survey, and I met him while I was taking some school kids around to their various exhibitions. And we got chatting and I told him my story and Sir Raymond Priestley said, 'Well, why don't you come with us?' And that was the very, very first time that it ever entered my head about the Antarctic and going down there.

Chris Lee : *You knew where it was then?*

Barry Heywood : Oh, roughly yes. I knew it was the bottom end of the country, but not many people do. They always say, 'How did you get on with the Eskimos and the polar bears?'. And although I was engaged at the time, it was too good an opportunity, if they could

actually take me. And Bill Sloman always joked with me afterwards, saying that they didn't know whether to put me on half pay or quarter pay, because there was so little of me there [laughs]. So, I had this unique claim to fame that I did my recuperation in the Antarctic.

Chris Lee : *So this was immediately after the accident?*

Barry Heywood : Yes, the accident happened in the August of 1960 when I was 23, well not quite 23. And by the following September, I was on the *John Biscoe*, heading South.

Chris Lee : *Two questions then about that. One is, did the fact that you'd had the accident give anybody second thoughts about you going to such a remote part of the world?*

Barry Heywood : Well, my parents weren't very happy about it, but then again, no parents are anyway, whether you're ??? [inaudible] or not. And I think Bill Sloman had some reservations, but I don't know whether it was the name or what, but the senior medical person at the time for FIDS was a Colonel Heywood, spelt H-e-y-w-o-o-d, which I always say is the right way. And whether he thought, well, you know there must be some connection here, to let me do it, I don't know.

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I mean, it was very funny because I was fourteen stone and it was all up here, before the accident happened. And I was weeks and weeks in a plaster cast - that went from my crutch, arms out here, and my head in one too. And the weight just melted from me. I was a sort of near-eleven stone weakling when I went down to the Antarctic. But I've always been hard working and I suppose, tough, really because I did persevere and did the work I had to do down there without too much effort. But from time to time I would be really ill, without really knowing why and it wasn't until my last summer, when the Chief Medical Officer from the Falkland Islands was on the ship, and I got talking to him and I spoke about this and he looked at me - and you can see I've got a sort of dimple thing there - and he was doing that and, you know, I'd notice before that little bits of pus would come out from time to time. And it turned out afterwards, because I got examined in Port Stanley and went to see the dentist and they took out one of my few remaining teeth. And I'd had an abscess in my jaw all the time I was there. And apparently, this was where they'd put the pins in to hold the parts of the jaw in place. And obviously some of the plaster had got in, the plaster of paris had got in there, and over the two/three years it had festered away and eaten part of the jaw away, so I'd been down there with this recurrent abscess all the time, which would come and go, and come and go.

And so I just assumed, well he said that was probably the reason why I would have these periods when I didn't feel well.

Chris Lee : *Sometimes, close calls change people's philosophy on life. Did that happen to you? You were left for dead, but you lived to enjoy life afterwards. Do you think the life you led afterwards was shaped by the fact that you had a near-death accident? In other words, were you more adventurous or more cautious or couldn't care less any more? Living on borrowed time. Did it change your view?*

Barry Heywood : Well not really, because I always thought, and I like to think most of us do in the Survey, that's it's not a question of putting your life at risk, but you're putting other people's lives at risk, because it's human nature that if you were in difficulties, other people would try and help you out. And so I think that for anybody, under the circumstances in which we worked, and still work, in the Antarctic, that you have a responsibility not only to yourself but to other people, you know.

So, perhaps I'm not a very philosophical person. I knew damn well that I'd been given a second chance and it really did swing the direction of my life away, because of course I was set up to do the research, stay in university and become a university lecturer and carry on like that and probably be bored out of my mind [laughs], because, as I've often said, the Antarctic gave me the opportunity, you know. I've always said about people born in Derbyshire – strong in body and weak in the 'ead! And it gave me an opportunity to use brawn and brain and it was ideal. I mean, so much so that at the end of my first two and a half years, I mean, I tried to get the powers that be to let me go to another base for another year, but because I'd been doing research down there as a scientist, I was told I'd got to come back and write up. But it was the sort of life that I really did lead and that's the reason I stayed with them until I retired [laughs].

I was fortunate in meeting Jo, whose Father had been a ship's captain, so she was used to not seeing her Father, especially during the wartime, she didn't see him for about seven years. So, in a sense she was able to accept my going away so often for so long each time.

Chris Lee : *You were interviewed by two famous names – Sir Raymond Priestley and Bill Sloman. What did you make of them, these men?*

Barry Heywood : Well, Sir Raymond Priestley. Of course, you looked at him with awe, because he'd been down with Scott and they'd been down when it was really hard and he'd survived and he was a very nice, friendly man and I met him for several years afterwards. I used to meet him about once a year until he died.

Track 4 [14.51 min]

And, of course, Bill Sloman I got to know him very well and, in fact, Bill and Peggy were having dinner with us less than two weeks before his heart attack and he died. So, I mean they were great friends.

Chris Lee : *Tell me about Bill.*

Barry Heywood : Bill was very much an Indian Army man and I used to be amazed at his recall. He could remember everybody's name and everything and it was only when I was in a senior position in the Survey that I realised that we had these crib cards and when I went down on the ship to visit the bases as Deputy Director and then as Director, I had my crib card. And of course, what you did, you did your homework, so that when you got on the base, you knew who everyone was – don't ask me now [laughs].

That's one of those embarrassing things, if you work for the Survey for getting on for thirty-seven or forty years. During that time, every year we'd take on sixty to a hundred people.

You're there all the time, so everybody knows you, but when you go to reunions, which I do, so many people I know say 'Oh, hi, how're you doing?'

Chris Lee : *What would you say Bill's qualities were?*

Barry Heywood : He was a very genial, very friendly man. I think he was firm at the right time. I can't remember me giving him any cause to be very firm with me during my junior days. And I think he was very capable. I mean, he held down a job in FIDS and then in BAS, when really the home support staff was rather low in numbers and Bill kept the whole thing running. I think Sir Vivian Fuchs was one of those people that was a doer and he was a natural leader and I think people had to fall in behind him and make sure that things could be done, if you know what I mean. I'm not sure to what extent he went into the fine detail, but I must tell you that when you're junior in rank you don't know too much about these people. I mean, Bunny Fuchs, we became great friends over the years and Jo and I used to go and see him and his first wife, whose name just escapes me for the minute, and then Eleanor his second wife. We used to go and see them fairly regularly. And then after Bunny died, we went to see Eleanor and then she moved. I'd retired by then. And she'd moved to, I think it might have been somewhere in Northamptonshire, it may have been in South ???[inaudible]. Jo and I used to cycle over there and go and see her, because she was a very lonely person, moving away. I think both Bunny Fuchs and Eleanor became quite lonely, although they were still living in Cambridge. It's just that they'd been so much at the centre of things but, as Bunny had had his strokes and everything and had to lead a more quiet life and, in fact, probably very rarely left home, they missed the company. But that's not why Jo and I went to see them, it's because we looked on them as friends of ours.

Chris Lee : *Is it true that modern day BAS is built on those two personalities – that's Sloman and Fuchs?*

Barry Heywood : I'm a little surprised that that's said really, because there have been many strong people since then. I mean, Dick Laws took over from Bunny Fuchs and it was under his leadership we really went to be a mainly scientific organisation rather than the Survey onwards and outwards, sort of thing.

I mean the need provides the man, I think. I mean Bunny Fuchs was the right sort of person to steer it from being the Falkland Islands Dependencies Survey to working under the Research Council and NERC. And then Dick Laws took over, another strong character that was able to resist what seem to be often the machinations of NERC to get their hands on our money, and at the same time, on a very small budget, turn it into the scientific organisation, well give

Track 5 [19.47 min]

the foundation for the scientific organisation it is today. The real upturn in the BAS funds came under Margaret Thatcher. David Drewry was the Director then, I was his Assistant – Deputy. We went up and we were given a half hour slot. And we really honed this talk down, got it really slick.

Chris Lee : *You knew what was coming when you went to see her?*

Barry Heywood : Oh yes. Yes. We were going to tell her about our work and how important it was.

Chris Lee : This was after the Falklands War?

Barry Heywood : *This was after the Falklands War?*

Chris Lee : *But you were called in weren't you? Did she not call you in?*

Barry Heywood : Yes, she wanted to know about the Survey. They wanted a reason for the British presence down there, rather than just the 'we're sitting on the land, so it's ours' sort of thing. A good reason to sell to the country for providing the support for being down there.

And, as I say, we were given a half hour slot. And I remember going in there. And David was going to do the talk, I was sorting out the slides. And Baker came in, he was Minister of Education and Science at the time. He said, 'Show me your slides'. I said, 'I'm sorry, they're in order and we don't know when the Prime Minister's coming in.' 'I want to see the slides'. And we were having this argument when she came in. And Baker was looking daggers at me and thought "I'll send ??? [inaudible]" sort of thing. But then Maggie Thatcher, it was said that she had a five minute retention span. If you hadn't got her attention by then, forget about it.

Anyway, before five minutes was up, she'd kicked her shoes off and she'd curled up on a chaise longue, like women do. And there was an audible gasp round, well it wasn't quite audible, but you could feel it, from all her sycophants. You could have said that she had more balls than the whole of her cabinet, probably quite right. They all relaxed, because the Prime Minister was relaxed and enjoying herself. Anyway, nearly an hour and a half later, this guy had been coming in and whispering in her ears and he finally succeeded in getting through. She stopped, stood up and she said, 'Gentlemen, I'm terribly sorry, I've got to go. There's somebody that I've got to see', or words to that effect. She still took time out to go into a darkened area of the room, where the technicians were that had helped us carry in the gear and helped us set it up, to thank them. And then she disappeared. Well, we backed up and we went outside and there was a blaze of television lights and cameras and everything. And we thought, 'My God, we've made it!'. And then we suddenly realised that it must have been an Ambassador, or somebody really important on the political scene, that was coming to see her.

Anyway, it was within the week that she went to give her famous 'We are now Green' speech to the Royal Society and we always said it was due to our talk. Because she was asking us all sorts of questions, about the fisheries in the North Sea, and all these restrictions to it and I was telling her, 'Well this is important, the fish stocks have got to recover and you've got to catch the fish at the right size so that they've bred before you take them out of the ecosystem'. And that's when we started having money and it was always ring-fenced and that really did annoy NERC because they couldn't touch it, it was there, it was ring-fenced.

Chris Lee ; *Let's just go back a bit. The Falklands War is on.*

Barry Heywood : Yes.

Chris Lee : *And at this point you're not quite Deputy Director yet, are you?*

Barry Heywood : Oh, no, no. I'd just taken over the Marine Life Sciences at the time.

Chris Lee : *We'll talk about that in a bit. Let's just focus on this meeting with Thatcher then. So this was a couple of years after the Falklands War?*

Barry Heywood : Yes, you're probably better on the dates than I am.

Chris Lee: *You and Drewry have gone in for half an hour and find yourselves faced with ninety minutes.*

Barry Heywood : Well, it's quite easy actually, because, everybody can talk on their hobby or pet subject. She was a scientist you see, a very rare thing in politics. She was a scientist, she had a PhD in Chemistry, I think. And she knew the questions to ask, after we'd finished.

Chris Lee : *And so she quizzed you for a hour?*

Barry Heywood : Yes, we were talking all the time, yes. We had this in mind when we were preparing the talk, you know. It wasn't a question of just waffle. We had to be on the ball,

Track 6 [24.48 min]

giving her a very punchy account of everything we did, from bacteria in the sediments of the ocean through to upright and ??? [inaudible] physics, solar wind, and everything in between. And to talk about its importance. And, of course, in half an hour, with the best slides in the world, you can only just skim over the subject. So there was great opportunity for any person that's trained in science to ask questions. And she did and I think. Well I mean, let's push the boat out and say I think she probably enjoyed it as a welcome relief from the normal stuff that she had to do. And we thoroughly enjoyed it. We went in there with fear and trepidation, because she'd got the reputation of being an ogre. But she turned out to be a very friendly person, and the proof of the pudding happened several years later, when she had a meeting in Cambridge that she came up to and we were approached, if she could come and see us first, she'd like to have tea with us. And so this she did and I was, as I say, I was David's deputy and we had all the heads of the science divisions in and also the Institute Secretary and she sat there for quite an hour or so with Dennis her husband, chatting away and she had a lovely time and thanked us very much and then went off to do her thing. Well, we must have had some impact on her.

Chris Lee : *That meeting, the No. 10 meeting, did you know you were winning? Did you sense electricity in the room, when she took her shoes off ???[inaudible].*

Barry Heywood: Well, it was, as I say, her sycophants that really gave us the clue, because they relaxed. They were visibly tense and on edge at the time, and when she'd, as I say, shoes off and sat up there and curled up and started to listen to us and listened intently all the way through, didn't interrupt at all, and then started speaking to us afterwards. I mean, yes, we knew that we'd gone down well.

Chris Lee: *Did you have a figure in your envelope? Did you ask her for a particular sum?*

Barry Heywood: No, because it wasn't the occasion for that. I mean, of course we knew what we needed to do, in addition to what we'd also like to do and in the discussions that came about afterwards, these points were raised and I think our income was raised to about £22 million, I think.

Chris Lee: *Is that what you asked for or a compromise?*

Barry Heywood: Well, you never get always what you want. But we also had additional money of course, because eventually we were able to sort of rebuild Halley Bay and start on Rothera and to add the new ship, the *James Clark Ross*. And all that came in, well I mean the *James Clark Ross* was £66 million.

Chris Lee: *And that was just government money?*

Barry Heywood: Oh yes, government money. Yes, they had this sort of thing called PFI in those days.

Chris Lee: *Were you and David Drewry comfortable about the fact that you were getting the money for political reasons rather than scientific reasons, or is that not fair?*

Barry Heywood: Well, we were happy because we both firmly believed in the work we were doing. I mean, you don't kick a gift horse in the mouth, or whatever the expression is, do you? I mean, you take the money, regardless. And it was important, what we were doing. I mean, even the work that I had done in 1961/62, with very, very limited equipment on the lakes on Signy Island, I mean, it proved valuable baseline data to see the effect of climate change we started to recognise was occurring and, of course, it was the British Antarctic Survey that discovered the ozone hole [29.10 min], again with limited equipment and thank goodness we did have limited equipment, because the Americans with their computers and their satellites, of course missed it, because they'd set the gate of acceptable data so narrow that when the information fell outside it, it was dismissed as an instrumental error, you know, instrument error.

[29.26 min] Chris Lee: *So both you and America were looking for the hole, the ozone hole?*

Barry Heywood: No, we weren't looking for it, because what we were doing, pure research, is just looking at things and trying to understand them and we just so happened, we had people studying the ozone layer and when it seemed to thin,

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a couple of years was spent checking the equipment and making sure that the measurement was sat [satellite]. Well the Americans had got satellites going round and they were measuring as part of a suite of measurements the ozone layer, and as I say, once you're doing everything with electronics, the amount of data is so vast that, really, to enable you to handle it you set a gate and anything that falls outside it is instrumental error, or something's gone wrong. Fortunately for all of us, and especially the Americans, none of the data was ever thrown away, because it was all stored and of course once we - Joe Farman and his two

colleagues - published their paper, then the Americans went quickly scrabbling back through all the data that they'd received over that time and sure enough, there was the confirmation.

Chris Lee: *You'll have to remind me, were you Deputy Director at the time of the ozone layer?*

Barry Heywood: Yes, yes.

[31.00 min] Chris Lee: *Thank you. Let's just talk about that for a minute. We're leaping about in your story, but I don't think it matters as long as we cover the territory eventually, the chronology is not too critical. But when was the first hint on your desk that there might be a problem with the ozone layer? Can you remember that first memo or the first telephone call?*

Barry Heywood: No. I do know that, and I can't put it in any chronological order really, but I do know, I'm trying to think of the man's name [Jonathan Shanklin]. Unfortunately for him, he's the third name on the paper but he was the one who was going through the data and discovered this seeming drop in the ozone layer. He pointed this out to his immediate superior and they then checked it and they took it to the head of the unit, who was Joe Farman, and Joe set up this rigorous regime to determine whether the equipment was performing correctly or not, or whether there was some error in the way the measurements were being done. And so, I mean there were rumours going round the Survey that this sort of thing was happening. Everybody was getting excited about it and then, of course, the paper was published and that was it.

Chris Lee: *It's the rumour I'm interested in, because at some point somebody must have said to you, 'We've got something here that might be interesting.'*

Barry Heywood: Yes, but I can't remember the detail in that.

Chris Lee: *So, word was getting out and around BAS quite a long time before it hit the public's attention?*

Barry Heywood: Yes, I believe so, yes.

Chris Lee: *And was there a sense inside BAS, in the Director's office, was there a sense you had something very important here?*

Barry Heywood: Oh, I think so, once it was been ably demonstrated, because of course we all knew and especially the biologists knew this was letting in UV and the UV was harmful. Fortunately for us the world leaders also realised it, because the Montreal Convention of course banned the use of the fluorocarbons that were doing it.

Chris Lee: *The CFC's?*

Barry Heywood: Yes. It was an exciting time and it is nice to have something like that under your belt then, because, as I say, there was always this sniping with NERC to get their hands on some of our money and everything and people down in the Antarctic, you know, you got this sense that they wondered why we were down there, we were just having a damn good

time at the country's expense. But we were able to say, 'Well, look, this alone is worth every penny that's been spent in the Antarctic, that information'.

Chris Lee: *This could save mankind?*

Barry Heywood: Well, yes, I mean forewarned is forearmed, I mean look at the incidence of skin cancer that's occurring even now in Australia, in spite of the fact that everybody there is very conscious of the fact that for a large part of the year there's a big ozone hole over them. Of course, it's in New Zealand now and it's spread and it's in South America too, Chile and Argentina. And, of course, the same thing is occurring in the Arctic, but because of the topography in the Arctic, where, although you've got a flat

Track 8 [34.46 min]

central piece, which is the frozen sea, the mountains on the surrounding continents cause turbulence in the air mass, which of course breaks up then, but of course the ozone layer is being depleted there just as much as in the southern hemisphere.

Chris Lee: *I was reading through some of your Annual Reports when you were in the Director's chair and there's one which caught my attention, where you presented two theories of what might happen to sea levels if global warming was not checked. This is your 1995/96. 'There are two extreme scenarios for the effect of global warming in Antarctica. One was that sea levels would rise and one was that sea levels would actually go down.' I've never come across that before, where did that come from?*

Barry Heywood: Well, one of the effects of climate change will be that the oceans warm up, because they're the biggest manipulator of the global climate. They absorb so much heat compared to what air can carry and everything. As the waters heat up, that means more evaporation. More evaporation can mean more moisture in the air. That eventually gets to the Antarctic, you get more snow fall. So the Antarctic can expand, so that was the reason why there were the two scenarios that the sea level could fall, because when snow falls on the Antarctic, it's locked there. But of course, into the equation is what the effect is on the ice sheets, on the - excuse me, a senior moment now. The, yes the ice shelves, that's what I'm trying to say. And if they start to break away more rapidly, then this will release the ice on the continent, the glaciers will start to flow faster and faster and the extra ice melting in the sea will cause the sea level to rise, so it was where the balance is, you know, it's very difficult to actually work out the dynamics of the whole thing.

Chris Lee: *Fifteen years later is that still the case or are you ??? [inaudible].*

Barry Heywood: Well, I do know that in certain areas the glaciers in certain areas are moving far faster than we even expected in those days, because of the effect on the boundary layer between the underlying rock and the bottom of the ice.

But the great difficulty is to get the whole balanced up, because I mean the Antarctic's a vast place. If you just take the Antarctic itself, it's twice the size of Australia and, within certain limits, the climate around it varies too, so you have today where in some areas of the Antarctic the ice sheet has grown and then you get in other areas like the Peninsula area where we work, the ice sheet is thinning and there's ice loss. The ice shelves are

disappearing, I mean when I went down in 1960, certain areas where you sledged across now you go across on the ship. You go round islands that were once thought to be part of the mainland. It's one of the things we found difficult to explain to politicians, who seemed to work on a five year scheme, you know. Well, we don't know, we're dealing with global matters and the problems are so vast that we may have a breakthrough this year or it may be in ten years' time, it may even be twenty years' time and, of course, that's when their interest then starts to wane, when they think they've got to make a commitment over that length of time.

Chris Lee: *It must have been very frustrating.*

Barry Heywood: Oh, it was, yes. I mean a lot of these people are lawyers and accountants in politics and you can't get across to them something as loose as science on that sort of level, it was very difficult. But anyway, we persevered and we didn't have to fall back on the Foreign Office to support us, so. It was a very interesting time, actually.

Chris Lee: *This is not a scientific question, this is a human question. Knowing the nature of mankind and knowing the science involved, how do you see the future? Do you think we're going to modify our behaviour sufficiently?*

Track 9 [39.52 min]

Barry Heywood: It's very, very difficult, it's difficult to get the western world to agree to change, although they can see what's happening. We've got a standard way of life. I mean, if you take myself and my grandson, I was used to walking from my village to the next village in order to catch a bus to go anywhere and if it was peeing down with rain, you stood there and you got wet. He walks at the moment five yards out of the house to get into the car to be driven to where they're going. He does play around and ride his bike and everything, but I'm talking about doing your day-to-day business. So, we've got that problem in getting the western world to agree to these changes. You see people living in China and India and places like that, which are just starting to get wealthy, think 'Well, I can afford to buy a car, why shouldn't I have a car? Why do I have to put up with food going off when I can get a fridge and a freezer? Why can't I have the standard of living - that television beamed, not into my house at the moment, but into the communal building, seeing what they have in America, seeing what they have in Europe, why can't we have it?' So it is a big problem.

I have a feeling that my grandson and his children will look back on this time and say, 'Gosh, they had it so good, and we're paying the price for it' - I'm a pessimist in that sense, I'm afraid.

Chris Lee: *Were these trains of thought going through your mind at the time, fifteen years ago when the information was arriving on your desk? Was it purely a scientific exercise for you at that point, or were people at BAS ???[incomprehensible].*

Barry Heywood: Well, we were preaching that we were doing wrong and we had to make change, but it wasn't in a sense our job to then become the politicians, to push it forward. We published things, we gave interviews to newspapers. We published our scientific work and we would talk science to scientific editors and hope that they would publish it sensibly rather than using a lot of their imagination and misguiding the facts. I mean it was annoying when

you saw in the paper, I think it was something like the *Daily Mail*, saying ‘Manchester will be the new Riviera’, when climate change isn’t to do with global warming. Global warming is only part of it. Climate change is the violence that we see in the climate, the increase in hurricanes and even in this country now, it’s gone up from about 25 years to 75, or something like that. OK, most of them are harmless, but look at the one that ripped through Birmingham and , because of the nature, we’re a sort of maritime climate, the wind systems don’t have the energy that they have when they’ve gone across the Caribbean and hit America.

So were were aware of this, but it was being reported in the papers wrongly. It was re-assuring people that things were going to get better, we were going to have vineyards back in the UK, like we had in the Roman times and stuff like that. They were missing the point, that it’s the violence that’s the trouble. And, of course, with our sophisticated systems, we are less able to adjust to it. You know, when you get a solar flare that comes down, we can measure it now and we can be forewarned and we can do something about it. Can you remember, was it in the seventies when it switched off all the electricity in the Canadian North Eastern Sea Board and hospitals and everything were struggling? And now, of course, they have their own generators on standby, ready for this sort of thing. And these were the things that we were publishing, but it wasn’t for us to push it forward. Well, apart from the talks that we gave and the papers we were publishing and the interviews we were giving, we weren’t really in a position to spread the gospel, as it were.

[44.35 min] Chris Lee: *It must have been quite a difficult decision for a Director to make, as to where you draw the line between presenting the facts and interpreting them further, particularly if you’d been quizzed by journalists from the tabloid press.*

Barry Heywood: Well, yes, I mean, we would always, when invited to give our opinion, like you’ve just done now to push it forward ??? [incomprehensible].

Track 10 [44.55 min]

But, I mean, our main purpose was to do the science and publish the results and you don’t speculate on the results, the results say, ‘A is so, or B is so’. We had quite a good publicity department, we still have – Linda Capper, you see and when the paper was published, we would write press releases. I remember going on this press release course. You had to grab the reader in that first paragraph of five lines, if it hasn’t got the editor by the short and curlies, he’s not going to read any more. You’ve really got to be so much to the point. I don’t know what more to say, actually. We’re always invited to give talks because the Antarctic is a very emotive sort of subject and so schools and rotary clubs and people like that will ask for talks, and when people went to give talks, then they wouldn’t stick to only scientific facts, they would actually give their interpretation of things like that. I always told people that climate change is something to be really frightened of.

Chris Lee: *Has anybody tried to stop you from saying any of this?*

Barry Heywood: Oh, no. No, no.

Chris Lee: *And at the same time, in one of your reports you’re reporting about the quite dramatic increase in thunderstorm activity. Is that related to the same ??? [inaudible].*

Barry Heywood: Yes, I mean it's all to do with the amount of kinetic energy that's going to be put into the global climate system, it's got to be discharged somehow, somewhere. And this is all part and parcel of it.

What we're doing, we are changing the world's climate over a period of time which is so small compared to the past. There's been glaciation in the past, there have been periods in the past, the carboniferous, when the whole of the world's climate was tropical. This is when the coal fields etc. and the oil fields were laid down. But in those days, it happened over millennia and life could adjust to it. But now, it's happening in short periods of time - 10, 15, 20, 100 years. I mean the deciduous native tree species in this area of the UK can't move, although their seeds can and that takes time. These horsechestnuts here, they can't pick up their roots and walk. Animals can, but if there isn't the food for them, then they will suffer just like everything else. So it is a desperate situation, in that we have disturbed nature.

[48.15 min] Chris Lee: *When these press conferences were taking place and you were publishing the ozone research results and so on, did you have sleepless nights about it, was it that worrying for you, and were there people who were not wanting to believe you?*

Barry Heywood: Well, there were people who were not wanting to believe us, because it was industry that was being affected and industry is money. I don't know if you've interviewed Joe Farman, but he's the one that was right at the crux of this, he was the one that was feted.

Chris Lee: *There was no indication of industry leaning on you, or offering a counter-argument?*

Barry Heywood: No, no, no. I mean it was in Montreal and places like that where the objections would be raised. Just like under Bush you had the oil companies arguing against the fact that this climate change was man made. So, I think Joe Farman was the one that was dealing with that all the time. I think in the real world we just knew in the background that this was happening. There was always resistance. I mean if it costs money, there's going to be resistance.

Chris Lee: *This is hardly the kind of scenario you might have expected when you were given the job in the first place, is it? When you were appointed Deputy Director, was it something you were craving or was it something that was thrust upon you? What happened?*

Barry Heywood: No, I had

Track 11 [49.48 min]

just been made Head of Life Sciences and then the Deputy's post came up and I remember talking to the Director's secretary, 'Oh, I wouldn't mind having a go at that' and she said, 'Well why don't you?' I said, 'I haven't got the chance of that, good gosh, I've only just become the Head of a division'. Anyway, on their insistence I found my application for the head of division and dusted it off, added one or two things, put it in and went down for interview and to my surprise, in a sense, got the job.

Chris Lee: *Did you want it?*

Barry Heywood: Oh yes. I mean, it's quite exciting. You can do more at each stage, can't you. And I certainly wasn't going to turn it down. And I'd known David Drewry was the Director for many years. We first met when he was at the Scott Polar Research Institute and always been friendly and I thought I could work with him, and when I was one of his heads of division there was nothing that persuaded me otherwise, so I thought, 'Yes I could work with him' and I thought we got on very well, we were a very good team.

Chris Lee: *And at any stage did you imagine that you might end up being Director as well?*

Barry Heywood: Oh no, because David was a young man, he was ten years younger than me and I thought, 'Well, I shall have retired before he retires'. I never thought he would want to move on. And then it was quite out of the blue when he was offered this job in NERC Headquarters.

Chris Lee: *In Swindon?*

Barry Heywood: Yes, and we thought, 'Well, it's good to get somebody in the enemy camp, as it were'[laughter].

Chris Lee: *And was that an automatic process, going from Deputy to Director?*

Barry Heywood: Well, it isn't normally, I mean it just was in my case. I was asked if I would do the job and I said, 'Yes, OK, fair enough, I'll do it'. I'd just got four years to go, so I mean I couldn't make too much of a hash of it, I couldn't do too much harm in four years. [laughter].

Chris Lee: *Bearing in mind there are scientists, did the administration and the management aspects of the job appeal to you, excite you?*

Barry Heywood: Yes it did, because, there's a lot of science which is just repetition and it's so boring and if you could be at the top to see the science being done and give it a steer in one or two directions and get other people to do it, I found it more exciting. And also it gave me an opportunity to spend more time going South and to different places because I had worked on the land until I was about forty and then I was asked to take over, to get this offshore biological programme off the ground and that meant that for the next ten years I was in the Antarctic almost every year for shorter periods of time, just three months. Although we did do a winter cruise that meant we were away for about six/seven months. And then there was the Anglo/German cruise when we'd done our three months and then we had to stay on and do another two. And I did actually work with the Institute of Oceanographic Sciences and they did a cruise out of Cape Town, two cruises out of Cape Town, when I was with them and I did enjoy that. I had a very understanding wife who let me do it.

When I was the Deputy Director, we had the Institute Secretary, myself and the Director David Drewry, and we used to go down for half a season each, so that meant that one year there would be one without the year off, as it were. But I found out that very often David Drewry had other things to do, so I would go down almost every year and the Institute Secretary did too, but that suited us both and I must say it was good to be with the lads and see all the changes that take place, from the draughty old wooden hut that I first was in, which Scott would have felt at home in,

Track 12 [54.48 min]

to these highly sophisticated buildings that are now at Rothera and Halley and to know that, in a sense, you've played a part in that change, it's good.

Chris Lee: *You mentioned NERC a couple of times. What were relationships with NERC like in your tenure as Deputy Director and Director? Because there was some financial jealousy, you've already hinted at that.*

Barry Heywood: Well, the Wilson government decided that it would amalgamate all the government research institutes from the five Research Councils and with the Natural Environment Research Council. They were taking over established organisations with good reputations like British Antarctic Survey, Institute of Oceanographic Sciences, Institute of Geology, the Institute of Ecology and Institute of Hydrology – they were merged eventually. Now, they all had their own reputations and everything and then NERC came in and wanted to take our kudos and make it their own and they were telling us what to do. Instead of sitting back and saying, 'Look, we're here to facilitate what you do', it seemed as if they were saying, 'We want you to facilitate being what we are' and it got up most people's noses. I don't think it was just the Survey. And I know Dick Laws, especially, had some horrendous arguments with them, as did other Institute Directors. And then it was the same with his successor, David Drewry, then myself and then even today, with Nick Owens, I mean, I know that his life could be easier if they had a different attitude, but there you are.

[57.03 min] Chris Lee: *When you were a Director, was there anything in particular you had to fight for you – fighting against that cut, fighting for new decisions. What were your big battles?*

Barry Heywood: Well I can't say I had too many, it was just the general atmosphere that you were working under all the time. I know that there was a limit on making permanent posts and also they didn't like these extended contracts. For most people it was just right, they came at the right time, had just graduated or had just done a PhD, they joined the Survey and they did their three years and then they left and went on to other things, they were getting married and having children and other things. But there were other people, like myself a bit in the past, that wanted to stay with the Survey and it was becoming increasingly difficult to get permission to keep these people on and then with reduction of numbers, you had to decide how you were going to reduce the numbers and yet still keep a viable workforce in a particular area of the science, or were you going to close that science down. These were all the questions that we were struggling with at the time, but I mean it's part and parcel of every Director's job really. I suppose, if you were the Chief Executive in any company, you've got to do that sort of thing, that's the sort of decisions you have.

Chris Lee: *Were you having to let people go, to use the euphemism?*

Barry Heywood: Oh yes, let some people go, yes. I can't remember the detail now, but we were 450 strong and we went down to 400 strong, there were quite a few posts lost. And, you see, we had to have a big support staff, I mean we were running two ships and all their crews and, having witnessed what it was like and the divorce rate among the captains and engineers, deck officers on the ships, I was fighting, with David Drewry as well, we were fighting to get

increased numbers, so that we could have two Captains per ship, two Chief Engineers per ship, and then try to extend that down, and eventually it was like now, each of our two ships has got two separate crews, but of course we're working in the Arctic now, so there's never a fallow period, never line up ??? [incomprehensible] alongside in the northern summer.

Chris Lee: *So it was your initiative, to actually have the split shifts, shall we say? Ships' Captains, with handover at Christmas-time?*

Track 13 [59.50 min]

Barry Heywood: Yes, yes. Well, I can't really claim that, I mean that had gradually happened under David Drewry and myself, pulling that through, but it came really to fruition about the time that I took over. And, you see, we had five aeroplanes, well four aeroplanes and the Dash-7 came along during our tenure. And we needed the crews for that, you couldn't just have one pilot, you had to have an overlap. Well, I think for the five aeroplanes we had then, we had seven or eight pilots, because they do take ill – 'I do want some time off!' - and they could only work so many hours. And then for the aeroplanes you've got to have the engineers and the ground crew for them.

Chris Lee: *You describe the arrival of the Dash-7 – the de Havilland Dash-7 – as a revolution in access to the Antarctic?*

Barry Heywood: Well it was.

Chris Lee: *In what way?*

Barry Heywood: Well, it meant that people could be flown to either South America or the Falkland Islands, courtesy of the RAF, and then they could fly straight in to the Antarctic and by that time people that were field workers and couldn't work in the winter, instead of just hiding the winter away writing up their field notes and preparing for their next field season, they could actually come back to the UK, where they had access to the libraries and everything. And this was yet another means of expediting this, you know. People could be in Cambridge and then, 72 hours later could probably be under canvass in the Antarctic and this is a great way of doing it. And it was a safety factor too; if somebody was seriously ill or seriously hurt they could be whipped out very quickly to Chile or Buenos Aires or anywhere with the Dash-7, weather permitting of course, with it being such a powerful plane, and because it was able to fly at - I think it was three miles up or something like that. It wasn't so dependent on the weather as the smaller Dash-6's with the twin-engine Otters. [1.02.40 min].

Chris Lee: *I also picked up - I hope I've got this right - but during your time there was, and with other businesses too, progressively more and more outsourcing of suppliers and projects and procedures you were doing – perhaps when ???[inaudible] farming projects or, not scientific projects but supplies out of other organisations. I'm wondering how comfortable you were with this general trend that the world and Britain was going through, where things were being pushed out ??? [inaudible – both people speaking at once].*

Barry Heywood: Well, I mean the government required us every five years to review the contracts that we had. Our food supplies for many years were done by a company called Andrew Lusk, the original Andrew Lusk was the owner of the firm. He had a soft spot for the

Survey and I remember saying to Sir Vivian Fuchs, 'Shouldn't we cancel this?', it was tobacco or something and not many of us smoked in those days, you know, because when it finished just after the war everyone had been a smoker because they'd been in the war etc. And he said, 'Look, I don't want to have this contract reviewed, because it's bound to go up in price if we do'. [laughter]. But, unbelievable though it may seem, the government had cottoned on to the fact that contracts ought to be reviewed every so often and so every five years reviewed contracts and, where necessary, we changed them. I mean one of the most painful things I had to do was to review the contract we had for supplying the medical staff, which used to be under the University of Aberdeen and the hospital up there. That had come about because a member of the Survey in the days of FIDS had become a senior surgeon up there and he arranged this on quite a casual basis

Track 14 [1.04.54 hr]

with Dick Laws who was the Director then, and they provided the training for the newly graduated doctors to come down and they would be at the end of the telephone or whatever means of communication we had, to help with additional difficulties.

But when you looked at the contract, it was very flimsy. They had one man, really, who was responsible all the time for answering all the queries. And so we put it out to contract and it was at Addenbrooke's and this hospital in Plymouth, I'm trying to think what the name of the hospital is now, sorry about that [Plymouth Medical School].

Chris Lee: *Don't worry, there's probably only one.*

Barry Heywood: Yes. And, unfortunately, Aberdeen just really made no addition to what they could offer. Addenbrooke's, in their submission, seemed to rely on the fact that it was Cambridge and they were a leading hospital and all that sort of thing. But the Plymouth people, they really did go to town and they had a written agreement with every consultant on their staff, in every field of medicine, that they would help. And this was brilliant so I gave it to them. Of course, I had lots of friends in Aberdeen and not many of them have spoken to me since, but there you are, these are the decisions you have to make. It's much easier on other fronts, I mean if you wanted to buy spares for your Dash-6's or Dash-7's, there was only one place to go to anyway. It's the same with our skidoos and Snocats and stuff like that. The market is very, very small. But we had a good technical team that examined what they got and argued the case and got the suppliers.

We tried to make our ships as self sufficient as they could be, the ships always were overhauled on the journey down to the Antarctic or travelling from the Antarctic and, of course, they had to go to a shipyard occasionally, certain work needed to be done. But by and large we had very competent officers, engineering and deck officers who could supervise this sort of thing, so we weren't in too much trouble there, I mean we did move from Southampton with our ships, up to Grimsby and everything, because we were dissatisfied with the service down there.

But it was pressure from within, because we knew that really we needed to have everything tip-top, you know, we couldn't afford to have anything slipshod because if anything went wrong in the Antarctic, you had a good nine months to wait before anything could come out.

Well, that's not strictly true now with the planes, but it's only certain stuff that can be flown in, you can't get the heavy stuff in, it's just what can be carried in the Dash-7.

[1.08.20 hr] Chris Lee: *Was there a sense also that, here you were with some decent funding, thanks to Margaret Thatcher, and so the onus to spend it as wisely as possible was even greater?*

Barry Heywood: Oh yes. But I mean we had been brought up on very limited funds and so it was in our nature to make sure that we got the best and it didn't matter in those days whether it was a good Nansen sledge or later on whether it was a good skidoo or a good Snocat. And I mean I was going round BAS earlier on in the year and I was pleased to see that there was a Snocat broken down to its bare frame and it was being repaired and strengthened and the chief met was saying, 'Oh, we're going to keep this running for at least another five to ten years' – brilliant. And also we don't sit on our laurels, I mean all the time we're thinking how to do things better and because the new computer technology is totally beyond what we could ever have dreamt of in the 1960's, he could see if a skidoo or a Snocat was being driven foolishly and over-revving, and he could switch it off – in Cambridge! He could pull a switch and the motor would die, it was unbelievable.

This is great, it's nice to know that this is still going on, you know. OK, we're good, but we could be better. And that is important and it's particularly important when a)you're working in a very extreme environment and b)you're using government funding. Because they may get away with their allowances, but it's surprising how strict they are when it comes to looking at everybody else's. [1.10.26 min]. [Completed 25 May 2010].

Disc 2.

Track 1 [00.13 min]

[00.13 min] Chris Lee: *Let's go back, if we can Barry, to your first work at BAS in the early sixties, at Signy. And I'm wondering when they appointed you whether there was a project in mind, or did you have to invent something, what happened?*

Barry Heywood: [Laughs]. Well, it was most amusing actually, because I went up to London and I met a guy called Peter Tilbrook and we were going to go down to Signy Island as two biologists and Sir Vivian said, 'I've arranged for you to go and see a Professor Smith at Queen Mary College, and he'll discuss with you what to do on Signy Island'. So, fair enough, we went to Queen Mary College and saw this august person and he said, 'Now then lads, what're you going to do'? And I looked at Peter, who was freshly graduated. And there's me who'd had at least two years doing research and I said to him, 'Well, what is known about this place, Signy Island'? And he said, 'I don't know, I don't think anything is known about it'.

Well, we had gathered that a chap called Dick Laws had been down there as a met man and had worked on seals. And Peter knew that his professor, from Durham University had been down there and had looked at the place and there was exposed rock with some moss growing and there were lakes and, of course, it's an island so there was a sea. So I jumped in and said, 'Well, if there's nothing known about the different environments down there, then we ought to go in and see what life is there and measure certain parameters of the environment, like the

physics and the chemistry of the water and the pH of the soil and all that sort of thing.’ ‘Very good’, he said and we chatted on a bit about ecology in general. Anyway, a week later we were back in Sir Vivian Fuchs’ office when he pulled out this piece of paper that Professor Smith had sent and it was quoting us almost verbatim. Well, Bunny Fuchs says, ‘I’ve got some money for you - £250’. I thought, ‘£250’. Anyway, we had to be duly impressed, so Peter and I went away and decided that with £250 we could buy a compound microscope. Period. And that would be it. So we travelled up to Ferry House at the Freshwater Biological Association and managed to borrow some nets and we’d also gone down to the Institute of Oceanographic Sciences. And we’d got a reversing bottle with three thermometers, on loan.

And so eventually we turned up at Signy Island and the boats there were a little clinker dinghy and a Norwegian type pram, which is a small boat. And just leaning over the side of those, it was quite obvious that the rocks and the sea bed to a depth of at least a metre, which was about as far down as we could see, had been wiped clear by the ice and everything. And these boats weren’t really fit to go out doing any serious work, so we both decided the marine biology was out. So that left the terrestrial and the freshwater. Well, we didn’t exactly toss a coin, although we always tell people that we did. Peter’s department in Durham had been very good on the

Track 2 [04.50 min]

on the terrestrial biology, particularly the small mites and stuff like that. So Peter took the terrestrial work and I took the freshwater work. The lakes on Signy Island were very, very small and I eventually chose three of them, but I couldn’t do much work the first winter other than just exploratory work. We were very fortunate that a chap called Martin Holdgate went down with us. Martin was a doctor, established at Scott Polar Institute in Cambridge, and I drew up a list of all the stuff I wanted, the chemicals and things to carry out work on the chemistry and what I would like if I wanted to look at the physics of the lake – the light penetration and stuff like that.

And so the next summer was like Christmas, all this equipment came in, including light meters and all sorts of things and so I was able eventually to do the first really good, thorough investigation of an Antarctic lake. I chose three of them actually, at different stages – one extremely clean, one which had had the influence of seals and penguins and one which was absolutely polluted, with seals in it. They were covered in ice and varied in depth from one metre to nearly two metres of ice. All I had was a 1½ inch wide woodworking chisel on a six foot pole, so it took two or three hours to dig into these lakes and push the ice out and then start work and in the winter time of course you only have three or four hours of daylight, so I used to be away from base a week at a time working on these lakes and I’d have somebody with me. And so I really got a taste for living under canvass in the Antarctic and that eventually led of course to going down and working on Alexander Island, where the lakes had five metres of ice covering the surface.

[07.18min] Chris Lee: *Did the lakes on Signy ever thaw?*

Barry Heywood: There were two lakes which didn’t but the other lakes, in the lowlands, they thawed in summer and they’d be a mishy-mash. There were times when it was so difficult to work on them because they were a mash of ice crystals. I’ve got a photograph of me

somewhere in a bit of a tiny boat that Martin Holdgate had procured and sent down and poling it out through this thin ice that they'd been working on on the lakes.

Chris Lee: *Were you surprised when you found moss under the water?*

Barry Heywood: Oh, you mean when I went down with Gerry Light Yes, I was. I did three summer visits to Signy and one of these visits was with one of the chaps I'd employed, Gerry Light, who was a very keen diver as well as a mountaineer. We borrowed the equipment from the people who were diving with the marine programme, which was well established at that time, and we went diving in these lakes. It was an interesting day actually, we were rather silly because we thought, 'Oh, this is a doddle', we'd got our neoprene suits on and we dived in the first lake and there was nothing in there. And so we walked and as we walked, of course, the water drained out of the suits and we got cold and your psychology starts to change, too, and we thought 'What are we doing?' And then we dived in this second lake and this was one of the lakes where the ice didn't melt. And there were these strands of moss in it growing to about a metre long. And that led to a paper that we published in *Nature*. After we dived in that lake, it was all exciting, we spent quite a long time in there, because we snorkled at first and decided the best place to dive to and then dived down, so we were in that lake about an hour. Then we got out, lost a lot of body heat again walking down to the next lake, because there was a paternoster chain of lakes, and we looked at each other and both decided it would be foolish to dive in there. But we'd parked our boat in the sea offshore because of the rocks and had to swim out to it and I thought I wouldn't make it actually, because we were so cold and miserable.

Track 3 [09.47 min]

And then about two or three years later I took Gerry Light down with me to Alexander Island and the lakes there had five metres of ice over them. But by that time, and this is one happy chance and it's a true story. I was literally sitting in a dentist's waiting room, picking up one of the magazines they have which has to do with everything but what you're interested in, like a knitting magazine or a *Woman's Own* or something like that, but there was a fishing magazine and it had an article about fishing in Canada and it said the 'fisherman's friend' and this was a flymo-type engine on top of an auger and it had a metre-long blade on it and the fishermen used that to drill through the lakes in the winter. And I came back all excited and spoke to Dick Laws and said, 'If we had one of those, it would make a lot of difference'. At this time we didn't know the thickness of the ice on the Ablation lakes, because the only people who had seen them were Charles Swithinbank, by air, and Bunny Fuchs and Ray Adie when they'd sledged down the Sound, and they'd actually stopped and looked into Ablation area and saw a big lake there, realised it was a lake from the smoothness of the surface and there was ?? Moutonnée Lake next door to it, but nobody had actually been there, so we didn't know what it was like at all. So I got one of these 'fishermen's friends', these drills, and its first use was when we flew into Adelaide, there was a blow on, so when the plane landed we quickly drug out through the icy snow and put the deadmen in to tether the planes down, so I thought it was some use, at least.

[12.00 min] Chris Lee: *Was it battery operated or ???* [inaudible].

Barry Heywood: No, petrol. Well, the only sensible place to land on Ablation Area was on Ablation Lake and, of course, nobody knew how thick the ice was. We knew it had never

thawed out, but we didn't know how thick it was. So the plane did a series of circuits and runs until it was decided it was strong enough. The plane landed and they kicked us out with all our clutch and they took off and there we were, left in the middle of this lake. We had about a mile or more to get to the shore and, of course, we eventually made it and it was quite exciting getting off to the land, because it's very funny – it was very broken and we couldn't understand why. Afterwards, we found out they were tidal. When we started to drill into the lake, we found out that one metre was nowhere near enough and I had some extensions made, without an auger on them but just rods made by the diesel mech and flown out and dropped to us and eventually we found out it was five metres thick. And it was very tedious, you just drilled down, with an extension on, and you pulled it out to get rid of all the accumulated ice and everything, but we couldn't have done it with that one and a half inch steel chisel.

When we put the conductivity metre down, we found that there was about 55 metres of freshwater, then a 10 metre quick transition zone and then seawater and the theory that I put forward was that these had been embayments from George VI Sound, and then as the climate changed and it became an ablation area, that is there was more loss of snow than accumulation. As the snow started to melt in the sun, it drained into this valley and lay as a thin film on top of the seawater and of course they wouldn't mix, with it being pure freshwater. This would then freeze and then as the thickness increased, eventually it would insulate itself, so the freshwater running underneath would remain as water. And that's how the lakes were formed. And the end of the lakes were dammed by glacier ice, because George VI Sound

Track 4 [14.50 min]

isn't sea ice, it's freshwater ice from the big glaciers on the mainland and it's pushing against and damming up against the end of these embayments. Well, Gerry Light was a very experienced diver and we set up an amateur little tide gauge and watched the tidal movement and after two or three weeks we were quite happy, we knew when the tide was in and when it was out, because it was moving the gauge up. And Gerry very bravely dived into the lake and we found that, even under five metres of ice there was algae growing, not moss but algae. And I dived in some of the shallower lakes that were along the edge of the Sound and I found that there was luxuriant moss growths.

So we were in the field for 110 days and I was quite interested in your story about the lads at Fossil Bluff, because it was time for us to come out and we'd got everything packed and we laid out the runway and you put your boxes along, with cocoa and everything and you mark out the limit, where the ice starts to get rough again, so it gives some idea to the pilot. You have these staging posts, called A-B-C-D, and we heard the pilot reporting back to Adelaide that [he'd reached] Point A, Point B, Point C, Point B. I thought, 'Did he say D or B'. Then he said 'Point A'. Excuse me, but [laughter]. And we said, 'We were just going to call you, put your tent back up and get inside, there's a blow on'. And we did and for the next ten days we could hardly leave the tent. We immediately went on to half rations and we were discussing what we should do, because the ships have to leave at a certain time and so do the planes because of the weather conditions. And we thought, 'Well, we're going to be here for the winter, so we will sledge down first of all to Spartan Cwm,' where we knew there was a food depot and then from Spartan Cwm, we'd go down and winter in Fossil Bluff, because at that time it wasn't used in the winter, but we knew that there was fuel and food there. And

then next, early summer, just for the thrill of it we'd sledge out, up Graham Land and get picked up by the ship.

But one day, which would be what we call a dingle day, sunshine, they told us when we made our daily sched , 'We're going to pull you out today'. So we knew it was our last chance. Well we looked at the surface of the lake and it had been stripped clear and it was bare ice and boulders of ice and everything. And we said, 'We haven't got time to go up onto the glacier inland to find a decent place for you to land at all, so you're really wasting your time.' 'Well, I'll come in and have a look.' And he was an ex RAF pilot and he came in and as he landed, there was little riveted stringers on the bottom of the skis and they all came off and we went along and collected them up in a big bundle. And I think I said to him 'Welcome, we've got enough food for you to join us and go down to [laughs]'. He said, 'Oh no ???[inaudible]', so we put everything on board including a clapped out skidoo that we'd used and we took off and I was in the co-pilot's seat and as we went towards these pressure??? [inaudible] ridges, they got nearer and nearer and I started doing this. We took off and when we went across Marguerite Bay, the only thing that seemed to be moving was the fuel gauge, we were going into a head wind. We landed across the dog spans, it was so desperate. But it was a good time.

[19.16 min] Chris Lee: *Finding the mosses then was something of a surprise?*

Barry Heywood: Yes.

Chris Lee: *You weren't expecting any life down there?*

Barry Heywood: Well, not moss. Because moss is a terrestrial plant. But we came to the conclusion that being in the water was the most ideal environment under those circumstances down there.

Chris Lee: *The mosses best option?*

Barry Heywood: Yes, indeed.

Chris Lee: *You hinted earlier in the first half that this freshwater lake work you did came back to you again when the global warming issue arose.*

Track 5 [19.52 min]

Barry Heywood: Well, it was a baseline of data, so any changes that were taking place in the lakes, from the increase in UV and the change in climatic conditions could be measured against it. You can only measure change if you have a baseline to measure the change against. The baseline for other people to work against.

[20.18 min] Chris Lee: *Signy of course became a summer only station and the work on freshwater lakes stopped, that happened when you were in the Director's chair?*

Barry Heywood: The reason was, there was a lot of silly stuff said and written about it including that written by Sir Martin Holdgate, saying it was ridiculous to close down Signy at a time of climate change. But it's easier for someone to say that who's never been since that

one occasion, because I'd been there many times and the first seal explosion had completely destroyed the moss banks on the lowlands and had polluted all the lakes. So the lakes were no longer freshwater lakes, they were just sewers to seals, and it made sense to us to close down Signy, because the fur seals had destroyed the marine environment too, because they'd eaten all the fish and everything there. So all three environments had been spoiled by this explosion of fur seals, I mean you could hardly walk on the island without treading on a fur seal, there are so many. When I was first down there, we saw one fur seal and Kodak shares went up because everyone was taking photographs of it. Now there are thousands there and they just cover everywhere.

So we decided to move the base to the new base in Marguerite Bay, Rothera, because I'd reported the fact that there was moss and freshwater pools and freshwater lakes all down there, in fact we'd worked on ??? [inaudible] Island, where there was moss on outcrops and there were lakes and pools and the whole lot and, of course, there was the sea. But then, this is where the Foreign Office stepped in and they said, "For political reasons we have to maintain a base on Signy Island, so David Drewry and I decided that the way to do it was to have it as a summer only base and do the minimum of work there and that's what's been done to this day. But, as far as I was concerned I didn't see how any valuable freshwater or terrestrial or marine work could be done there, because of the effects of the fur seals and I still maintain it now. Most of the work is now done at Rothera where, sadly, the fur seal population is also starting to increase, the populations there are just exploding.

Chris Lee: *Do you know why?*

Barry Heywood: Well, the whale stocks had been reduced and nature abhors a vacuum and there's all that food in the form of krill that the fur seals eat and the fish and all that sort of thing.

[23.14 min] Chris Lee: *Let's move on to your love affair with krill if we may [Laughs]. Because you moved from freshwater lakes to offshore marine biology and I think you were involved in the Offshore Biology Programme quite early on?*

Barry Heywood: Yes, Dick Laws asked me if I'd get it off the ground and become the Chief Scientist and I was sort of naive enough to think, 'Well, it's just a question of salt [Laughs] to do that'. We had no physical oceanographer and I said, 'OK, I'll take that over'. I didn't realise what a difficult subject it was, but in a sense I became a self-taught physical oceanographer, not a very good one but just enough to provide the background information for the biologists. Dick Laws managed to get a small amount of money to bring about the few changes on the *John Biscoe* and that was to convert the poop house, which was on the ship. It was at the aft end and part of it was the bunk room for two cabin boys and part of it was the hospital for the ship, the doctor's surgery. Well, all this was stripped out and we had a heavy duty canvas partition to divide into a so-called dry lab and wet lab.

Track 6 [24.54min]

I was working with some very sensitive equipment to measure the conductivity of the seawater and I remember people were bringing the samples in on the wet side, and of course the air was laden with salt and moisture and I think I spent more hours stripping this conductivity machine meter down, with the help of the radio operator who, fortunately for

me, was quite a whizz kid on the electronics, and rebuilding it and trying to remove tiny particles of salt that were bridging across the circuit board than I did using it.

But it was quite an interesting time. I had a small davit for lowering the water bottles over the side, which was operated by an engine that had been removed from a small lorry. Unfortunately, it had been mounted incorrectly so we had to lower it down in reverse gear. We daren't knock it out of gear, because if we had done so we hadn't the confidence that the belt brake would have been able to operate when there was the weight of a thousand or two or three thousand metres of steel wire over the side. So every descent was slow and tedious and coming up, when we had the full weight of wire out, with the water bottles on, the engine wasn't powerful enough to pull it up in any other gear other than first gear. Then as we got near the top, we daren't change gear just in case the clutch wouldn't hold or it would go so fast that we wouldn't be able to stop it in time to detach the water bottles.

And so to do a series of measurements to measure the salinity and temperature profile down to, say, 2000 metres, it could take up to six hours to do it, much to the annoyance of the biologists who wanted to put their nets over the side. To put the nets over the side, we had the ship's derricks and they had to work together. Fortunately, this was good experience for the crew, they used to like to come and work on the *Biscoe* because that sort of thing was slowly going out of use in the modern ships because they had cranes and things on board. Anyway, we had a large rectangular net to catch krill and I think it was something like two metres by two metres and we had a big weight bar on the bottom, probably a 200-300 bar on the bottom with weights to hold it down. But sometimes it was like flying a kite to get it over the side and lower it. I think we caught more birds than krill.

So, they were amusing days and we came back with enough results to convince NERC to let us go ahead and approach the government for money to actually convert the *Biscoe*, so the poopass ??? [incomprehensible] and everything went and they put in a special stern deck and there was a little ramp, so we could pull nets over the side and we had proper davits fitted, so that they could lower the nets overboard, so there was none of this silly business with the ship's cargo davits. We had a proper hydrographic winch as well.

[28.50 min] Chris Lee: *Nevertheless, they were just modifications to the ship, it wasn't custom built at that stage?*

Barry Heywood: Oh no,

Chris Lee: *Also, am I right in thinking, most of the staff in your new offshore biological programme were transferred from other disciplines?*

Barry Heywood: That's right, yes. Inshore marine.

[29.00 min] Chris Lee: *So both those ??? [inaudible] must have been a bit of a handicap? You hadn't got the ship you wanted and staff were in the field??? [incomprehensible].*

Barry Heywood: Well, the obvious ??? [inaudible] is don't moan and get on with it. That's what we did and I think we produced some very good results, sufficiently so that when we did eventually put in for the money to build the *James Clark Ross*, which was a purpose-built hydrographic vessel, we got the money. That's good, but we did ten years on the *Biscoe*

because I'd helped to design the laboratories and , unfortunately, by the time the *James Clark Ross* was working, I'd moved on to pastures new. I was briefly head of Marine Life Sciences.

Track 7 [30.00 min]

Chris Lee: *Why was krill so crucial?*

Barry Heywood: It was a new industry that was starting up. I mean they'd all but wiped out the whale, as they'd done with the seal and they were now turning their attention to krill. But we knew, as biologists, as did the international community, that krill were the centre of the Antarctic marine food web, everything from bacteria that were feeding on the faeces of krill, to certain seal, fish and the whales and penguins fed on krill. So if you wiped out krill, then you'd be devastating the marine environment in the Antarctic, so it was very important that we got the handle on the amount of krill that was there and knew more about the biology of krill and what, if anything, could be a sustainable yield.

Chris Lee: *So you were counting on seeing how long they lived for?*

Barry Heywood : And trying to determine the biomass, how many krill there were in the Antarctic, or get a rough idea of the distribution of krill in various areas, because people had done a steady thing, back of an envelope calculation, there used to be with THINK, guesstimate, so many whales, and these whales used to eat so many tons of krill, therefore we can conclude that now the whales are not taking the krill, there's something like 60 million metric tons of krill to be harvested every year, which is a nonsense because, as I say, nature abhors a vacuum and other animals had taken over where the whales had left off. And that's why the fur seals had expanded so much. Now, if they'd harvested those, we'd have had Signy Island.

[31.48 min] Chris Lee : *Did you find krill interesting?*

Barry Heywood : Oh, very much so, they're a very interesting animal. I mean they survive the winter by feeding on algae that grow underneath the pack ice. This is a thing we found out. It's very funny, most of the world's oceans are deserts with a very limited amount of life in them, but in coastal areas and in certain other areas they're very prolific and we found that around South Georgia they were very prolific and we wondered why, and Julian Priddle and I worked on working down the bedding house and sea side of the Antarctic Peninsula. We came to the conclusion that in some of the coves there they were quite rich. There were the nutrients coming off the land and the amount of solar radiation they were getting because it wasn't a cloudy area. There was dense growths of algae in these bays and that's where the krill were really thriving and they would form very dense congregations and then they would release the eggs, of course, which would increase the populations, and these then would spin off in eddies and the currents were such that it took them by back via South Georgia and that's why South Georgia was the centre of the whaling industry, because of the large amounts of krill that were there. Anyway, I wrote a paper about it. I don't know whether it's been denied as rubbish since then, but that was our idea and seemed to be a good one at the time.

[33.40 min] Chris Lee : *I know it's another leap really, but let's go to your time again in the Director's suite, shall we say? Because there were various things that seemed to happen*

while you were there. One was the establishment of the Council of Managers of National Antarctic Programmes. I'm wondering what involvement you had in that birth?

Barry Heywood : Well, the Director automatically had a place on it and so when I became Director, I joined it. Also, I was Chairman of the European Marine and Polar Research Programmes for about four or five years.

Chris Lee : *There seemed to be a string of these anachronisms coming along, on which somebody from BAS always sat. I wonder whether these progressively had an impact on BAS, so that BAS could no longer be an isolated organisation but was being sucked into a worldwide ??? [inaudible].*

Track 8 [34.49 min]

Barry Heywood : Well, I think Antarctic research, certainly since the end of the second World War, has had an international element in it. Bases were established down there and scientists are members of a global community anyway. Even while the Falklands war was on we were talking to our Argentine scientific colleagues and friends and so it was quite a natural development that you would get on. In order that nations wouldn't duplicate the work that other nations were doing, these committees or Councils would be set up to, in a sense, regulate this work, although it was all done by persuasion rather than coercion, and that's the reason for these committees being set up. And there was this big international programme because we weren't the only ones who were aware what damage could be done to the Antarctic and marine environment by overfishing of krill. I mean all the other nations down there were interested. We had CCAMLR, the Antarctic Marine Systems and Stocks, that Dick Laws was involved with.

[36.17 min] Chris Lee : *There was a Treaty in 1991, the Madrid Protocol to the Antarctic Treaty, 1991, which was signed on your watch, so to speak. I was wondering what impact that had, what were the implications back at BAS?*

Barry Heywood : Since we'd been instrumental in drawing parts of it up, none at all. It was just something that we wanted, to govern the way we were doing our research.

Chris Lee : *So BAS didn't have to adjust to meet the Protocol?*

Barry Heywood : No, not all. By that time, we were aware of our imprint in the Antarctic and how to minimise it. Because no scientist does work in a dirty laboratory. Our laboratory was the Antarctic and although many of the ways we did things can now be deplored, at the time there were no alternatives. At Signy, just up the ridge from the base there was a place called Gash Cove and you know why – that's where we put our gash [Laughs]. But at the time there was no other means, although we could have collected it up and put it on the ships to bring it back to the UK, but what would we have done with it in the UK? It just goes into landfill, so you're merely removing your rubbish from one area to another without proper disposal. And it was various things like that - how to work with radioactive materials etc. we always took care because, like I say, you don't work in a dirty laboratory and the Antarctic environment is your laboratory. We were instrumental, together with a lot of nations, in drawing up the things which were agreed at these meetings, so it was no difficulty for us to comply with them, because we wanted them to be there anyway.

[38.22 min] Chris Lee : *You were involved in writing the Antarctica science into the 21st Century, the five year research programme 1995-2000. I've read most of that. Clearly, that was again a way of rationalising to be more strategic about the research that BAS did.*

Barry Heywood : The days were gone when you could go down there, see a professor at a University and say, 'What shall do?' and he would say 'Well, I don't know, go down there and see what's there' sort of thing. Those days were gone. When we went to the government we had to say, 'Well look, this is what we're doing, these are our resources, this is what we propose to do in future and why, and these are what we think are the likely values of doing this. We had to sell the science and quite rightly, it was the taxpayer's money. So we didn't have the luxury like you can have at university, where your first job is to lecture the next generation of whatever subject you're dealing with and do whatever research you feel like doing, your choice. We were government employees and so we had to report to them

Track 9 [39.51 min]

what we thought we should be doing and we could then say. 'And we've sent it out to international peer review, so it's not just us selling our angle, it's what the global scientific community agree is worth doing'. And every time we did that, we got very favourable comments.

[40.15 min] Chris Lee : *So research finally had to be tightened up, it was a bit haphazard before your paper ??? [inaudible].*

Barry Heywood : Well, we were growing up from a very small non scientific organisation to on Dick Laws' watch, to a very scientific organisation and just as research generally was coming under these different protocols, so we naturally fell into it and it became the thing of the day to publish a research proposal and get it accepted and then get the money, hopefully.

[40.52 min] Chris Lee : *So looking back on it then, was the way research was planned when you came into office fairly amateurish compared to how it was when you left?*

Barry Heywood : Not when I came into office, no, we can't claim that but it was under Dick Laws' watch that it really became more professional, shall we say. When I first joined, most of the research that was done was survey in geology and a little bit of meteorology, of course. But then upper atmospheric physics developed, the biology, the zoology, of all three environments developed. The geology and glaciology became more, not scientific, but had a different approach to it, rather than what is just there. But the origins of the Antarctic affected the geology, the past history of the Antarctic was in the climatology and glaciology and stuff like that, so the science was becoming more sophisticated and because of that became more expensive and it naturally followed that you had to make the case for what you wanted to do. You had to sell the idea and get the money for it.

[42.18 min] Chris Lee : *Planning had to be more precise?*

Barry Heywood : Yes indeed, yes.

[42.22 min] Chris Lee : *There's a whole pile of these papers. In 1995 it was the White Paper, Realising our Potential, which you must have read with interest because it was encouraging you to start generating some sort of wealth from some research, and that sounds like a contradiction.*

Barry Heywood : Well, yes, because it was up against the Antarctic Treaty, which said that you couldn't possibly use the Antarctic for production in that sense. You had to be carefully controlling the fisheries and you couldn't go exploiting the Antarctic for minerals and things like that. There was a lot of rubbish talked at the time, for instance the Antarctic has coalfields so we go down there and then get coal. And they were shutting down pits in the midlands because there were one foot thick seams as opposed to the twelve and twenty foot seams in Poland. So you go down to the Antarctic, you get your coal out under extreme conditions, the ships can't get in so you pile it on the snow and by the time the ships could get in because the ice had melted, so the ice that the snow was on had melted and you'd lost your coal. Wasn't it the President of Malaya said, 'The South Pole is made of gold and we want our share'? [laughs]. Because they drew comparison between the rock formations in South Africa with the rock formations in the Antarctic. The only trouble was there was something like three hundred million years difference in age [Laughs], which meant that you couldn't assume that the mineral content in the Antarctic was going to be the same as in South Africa.

[43.57 min] Chris Lee : *When you read these political pressures that you should start generating wealth for Britain out of our science, did you take it seriously?*

Barry Heywood : We had to take it seriously, because we were under pressure from NERC and the government to do so. We got up this tsunami, which was using predictions of global catastrophies based upon research that was being done in the Antarctic. We were able to sell some of the pure geological research we'd done to oil companies that were interested in the oil, not in the Antarctic as such, but in the Scotia Sea area and round the Falklands, because of the similarity of the geological structures.

Track 10 [44.50 min]

We made money out of that. But we couldn't do what they would really like us to have done, which was to turn the Antarctic into an world ??? [incomprehensible] producing area. Its value was in the pure science that could be done down there, its effect on the climate systems of the world, the weather systems of the world and the general climate patterns and climate change and that sort of thing.

[45.15 min] Chris Lee : *So how did you rebuff that pressure, because here was your paymaster saying, 'We want something for the nation'?*

Barry Heywood : Well, we went along with it and did what we could and in areas where we couldn't do anything, we talked about the Antarctic Treaty and soft-pedalled and did things like that, much to the annoyance of certain people [laughs]. I know I wasn't liked with my stance down there at times, but we had no alternative, we couldn't go across an international agreement like the Antarctic Treaty.

Chris Lee : *So it was an ill-considered document, was it?*

Barry Heywood : Very much so, I think.

[45.54 min] Chris Lee : *Let's talk a bit more about this tsunami budget. This was a project to try and predict a tsunami, was it?*

Barry Heywood : No. It was to predict catastrophic weather patterns and things being generated in the Antarctic and their effect on shipping and stuff like that. I'm afraid I'm rather hazy on the facts for this as it was rather a long time ago, twelve or fifteen years.

[46.32 min] Chris Lee : *But you might remember the visit of Greenpeace. Rothera, in 1996/97. You were actually there?*

Barry Heywood : Oh, yes. I took the lady down with me, this is Cassandra Phillips. We were going to build the runway at Rothera and they'd done their homework and read about skuas being seen down there and there was moss and everything. And there were these 'louts' going down there to denude the peninsula and break up the rocks to make a runway and scare off all the birds. They got in contact with us and I agreed to take their representative down, Cassandra Phillips.

It was very funny on the ship, it was in a bit of a widdy one day and I asked her, 'What's the matter' and she said, 'My husband's completely useless. The washing machine's broken down, the dishwasher's broken down and, well, he's got to go and sort it out himself'. I said, 'You have dishwasher, Cassandra? Doesn't that use these very strong detergents and things?'. 'Well, we lead very busy lives, you know, we need these things'. And she was always boasting about flying here and everywhere, the carbon footprint of Greenpeace people is very large. So we weren't on very good terms and then we got ashore and had a look around, and she said, 'Look, all those birds, all those birds'. I said, 'They're male skuas, Cassandra, they won't be breeding here. They just hang around till they get a mate and then they go off and find somewhere to breed'. She said, 'they've got a right to be here, you have no right to be here'. And all our conversations went on like that, it was absolute rubbish.

So anyway, we went ahead and we built Rothera and then I contacted Cassandra and said 'Are you free to go down to the Antarctic with me this summer?' 'Oh, it's not my turn'. It would be somebody else. I said, 'Cassandra, I'm sorry but you've got to go down. You wrote a subjective report on your views on Rothera before we built the runway. You've got to go down now and write one after the runway's built and you make your conclusions. Nobody can do that for you because they weren't there to see what you thought'. And she went down and that was my association with Greenpeace. I did go down with another one, whose name escapes me now, we went down to Signy Island and she was talking about Man's impact and I took her around and said, 'Look, see what damage the fur seals are doing'. 'Oh, yes, but they've a right to be here'.

Track 11 [49.50 min]

And I remember giving a talk once to a load of these people and I said, 'On Signy Island, there's something like fifteen hundred seals in summer, probably about five thousand penguins and another five hundred birds. Now, they all have an anus and at the height of the summer, there will be fifteen human beings down there and they all have an anus. Are you

trying to tell me that the human beings make more trouble than all the birds and seals down there?’ And that, as far as I was concerned, ended the argument.

It’s different, though, with our tins and bottles, but we’re already bringing them back. But what Greenpeace wanted us to do was to pooh in a plastic bag and bring it all back to the UK, it was just nonsense. They gave the same argument for Rothera and they wanted us to have homogenisers. Now, if they’d done their work and read about the bacteria. Marine bacteria were working about 20-30% efficiency, so if you emulsify your faeces, that goes out as a thin soup and the bacteria that try to tackle it can’t. If you let the stools go down whole, the fish just think it’s their field day. There’s food and the seal – so we were doing the wrong thing. So long as you put the pipes far enough out so that it didn’t foul the beach, then that was the right thing to do, not to homogenise the stuff and send it out as a soup. Like at Signy Island in the old days, we used to carefully cut the top off the big flour and sugar tins, and when they were full you put them outside and they froze solid, so there would be a big pile. And then as soon as the sea ice was firm enough, you went out, put them on the sledge and sledged out to where there was a hole in the sea ice and dropped them down. And then we’d go out two or three days later with fishing lines. Now that’s called recycling! [Laughs].

It was the same when the Head of Greenpeace, Lord ... , was talking about these oils rigs. ‘They couldn’t be disposed of in deep water, they had to be broken up in a Norwegian fjord’ – so they were broken up in a Norwegian fjord and they polluted it. If he’d done his homework, he’d have known that there are seeps round all coastal shelves, where heavy metals and oils are seeping into the sea at a far greater rate than all the oil rigs in the world just dumped in one place. It would be far better to take them out into really deep water and sink them there than to pollute a Norwegian fjord.

Chris Lee: *What were Cassandra’s conclusions?*

Barry Heywood: Her conclusion was that we shouldn’t have been there [laughs]. It wasn’t worth the paper it was written on.

[53.35 min] Chris Lee: *After some years, you took over NERC’s Arctic operations as well. Was that something you wished for?*

Barry Heywood: No, it was pushed on us.

Chris Lee: *It was thrown on you?*

Barry Heywood: Yes. It was a good job it was because it had been run in a very mickey mouse fashion, mainly by the universities themselves and there were people wandering into the field where there were polar bears and things like that, with no rifle or rifle training if they’d got them, the health and safety was very lax. When we took it over we were very shocked and we sent over one of our very experienced ex Base Commanders, who was very much a field craft man and completely turned the whole thing around. I think NERC got a bit frightened because I think there was a case, I’m sure I’m right in remembering, where these two American girls who were working at Svalbard had seen this polar bear ambling along and they’d stood in a doorway to observe it.

Track 12 [54.47 min]

One got away, seriously injured, while the other one was being eaten. And I think that writ something large on the wall and NERC thought ‘Well, we’d better do something about this’ and so we really did turn this thing around, it was very mickey mouse until we took it over. We’re still running it now.

Chris Lee: *And other big developments – you mentioned the James Clark Ross and the work on that, but also whilst you were there, there was the opening of the Cambridge HQ by the Duke of Edinburgh?*

Barry Heywood: That was on Dick Laws’ watch.

Chris Lee: *Were you there?*

Barry Heywood: Yes, I was.

[55.31 min] Chris Lee: *Did that serve as a really big turning point for BAS, the new HQ?*

Barry Heywood: There were two buildings. When I first joined the Survey, we were spread abroad. There was no such thing as biology, so when we came back a botany school had been started up in Birmingham under a chap called Stanley Green and we were at Queen Mary College. I think the upper atmospheric physicists were at Rutherford Laboratory. Some people were in Edinburgh and the geologists were in Birmingham. The first building that was built in Cambridge was what we called Fort Leggo, that brought us together for the first time. Then as we expanded, we had the money for the new building. So, in each stage it was a turning point, first of all coming together and, secondly, our growth, increasing in size. We went up to a maximum of 450 staff, including ships’ crews.

[57.00 min] Chris Lee: *Prince Phillip, of course, had been to the Antarctic, hadn’t he? So he knew a bit about it.*

Barry Heywood: That’s right, he opened the first building and then the second building for us, it was natural that he should come and do that.

Chris Lee: *Did you come across him at all, did you meet him?*

Barry Heywood: Oh yes, I met him. I would say that the only time we would get a decent meal when we go to the Antarctic Club, because he’s our President, is when he comes [laughs].

[57.24 min] Chris Lee: *I’m very intrigued by the way your brain has had to cope with your career. Because in the early 60’s you were focussing on algae, small animals, in a couple of lakes on a very small island in the middle of nowhere. By the time you left BAS thirty six years later, you were having to cope with global climate change and potential world catastrophe. So your brain must have done that in the process of those thirty-odd years. It’s the scale on which you were having to think. Things changed enormously.*

Barry Heywood: Well, maybe so. It was just a natural growth, I think. Like, as a child you start reading that Pat went up the hill and something like that as your first read and then you

finish up reading scientific papers in sciences that you've never been trained in, but you just have to grit your teeth and get down to the business, don't you?

Chris Lee: *You didn't find that a problem? ??? [inaudible].*

Barry Heywood: No. You have to remember that when you're specialising, the more you specialise, you know more and more about less and less, so when you're in a position where you're actually dealing with things on a global scale, you don't pretend or even try to learn the detail on such a large scale. You get a general grasp at the things. Like - I don't think I can do it now, but I could actually go out and talk about upper atmospheric physics, having just sat in on some internal lectures and read some of the papers that were produced. But I could talk sufficiently sensibly to the general scientific public, but if there'd been an upper atmospheric physicist in the audience, he could have tied me up in knots immediately. We had a system at the time, although I got rid of it because it was ridiculous really, but the Director had to approve every paper that was sent out for publication.

Track 13 [59.50 min]

Well, I mean as we grew I could have spent all day and every day reading scientific papers, because we were a very productive organisation. So in the end I just said, 'Well, the heads of divisions, that's your job, it's your division's reputation, you make a cock-up and you've got to carry the can.' But I'd read sufficient to understand where we were going in every division in the Survey, just like my predecessor had done.

[1.00.22 hr] Chris Lee: *But you were coming in as a biologist and yet you were having to read papers on geophysics and upper atmospheric?*

Barry Heywood: Yes, but the principles are the same, the ideas are the same. I may not be able to follow the maps of some of the presentations. But on one occasion I did see a fault in one of the maps, where the chap had made a mistake, I was very proud of that [laughs].

[1.00.46 hr] Chris Lee: *Was there any sense at any time that you were having to prove yourself to the non-biologists? The biologists knew you, but you were now becoming Director of sciences that weren't your speciality.*

Barry Heywood: One of the difficulties I had was that I was promoted in-house and that's always difficult. But you just had to exercise common sense and just hope that everybody thinks you're doing a good job. I know very well if I wasn't doing a good job they'd let me know. [redacted]

[redacted] For instance, what I wanted to discuss. Something would come from NERC and it might have had ramifications in staffing, or something like that. I wanted to be able to go to my Director's Committee, which consisted of the heads of divisions, and discuss the various routes we could take, the first decisions we could make, and then weigh them up and sometimes we couldn't come to a conclusion and I would say, 'Well, look, go away and think about it and we'll meet in a week's time or a fortnight's time and see where we've got to on this.' [redacted]

[redacted]
[redacted]
[redacted] [laughs].

[01.02.39 hr] Chris Lee: *Unlike the Fuchs' days, you were actually inheriting a cabinet weren't you, it was management by cabinet, so whereas Fuchs was able to make decisions as he wished, you had to keep justifying yours or you had to go along with a more communal decision-making process?*

Barry Heywood: Well, that was at two levels. Bunny Fuchs really was on his own and he didn't have heads of scientific divisions under him, because there were no real scientific divisions. I don't know what sort of control he had over the geologists under Ray Adie. I think Ray Adie could make his decisions about what he wanted his people to do, but Ray didn't have to go out and defend it in the wider world. Similarly, Roy Piggott, who was head of the upper atmosphericists. When we went under NERC, Bunny Fuchs then had to justify what he was proposing for the British Antarctic Survey to do under NERC. By that time he was Sir Vivian Fuchs and had a lot of clout and I think he was able to cower them down. His successor, Dick Laws, by that time had set up divisions with heads to them and so the decision as to what sort of research we'd be doing and where and over what time frame, that was done by people who were experts in several fields, but he had then to go down to NERC and defend his corner. And it just grew from there. I would never dream of saying to John Dudeney, who was my divisional head of upper atmospheric physics, 'Now John, this is what you should be doing'. Because I didn't have the knowledge to do that. But John would tell me and then we would argue in my Director's Committee as to

Track 14 [01.04.49 hr]

what proportion of money we'd have for that project and what proportion of money would go into the others. By that time of course we were writing these five year plans and putting them out to international review and they were coming back with comments on them and, according to the comments, they would have to be revised, or not. And then that went on to NERC and gained their approval. That's just a natural development, I've lived through a time when we were little better than Scott, to now, where if you walked into a laboratory at Rothera or Halley Bay, you could quite easily imagine that you were in one of the Cambridge laboratories. That's gone up from when my first job with Peter Tilbrook, my fellow biologist, we had to help to convert the boatshed into the diesel electric shed, so that we could have the diesel electric shed that was in the main hut for our laboratory. I mean, not every scientist has to build his own lab and it was the same when I took over the offshore biological programme, the first thing we had to do was to build the laboratory on the ship, you know, build your own laboratory. Nowadays we don't expect that, but more is expected of the scientist today than was ever expected of us. They have the equipment, the laboratories and the modern techniques, so they've got to do first class leading research now, whereas with us if we achieved that, it was a bonus really.

[01.06.34 hr] Chris Lee: *On the fingers of no more than one hand, what for you were the key priorities of the Deputy Director and Director's posts. What were the three or four most important things you had to do in your time?*

Barry Heywood: I think you have to ensure that the research you're doing is world class leading research. I think you have to do it efficiently so it's economic. And finally, I always wanted a happy ship. Reverse that, my priority was to make sure that the people who worked

for me were happy and contented and that I was furnishing them with what they needed to do their job well and the other two naturally follow from that.

[01.07.31 hr] Chris Lee: *One of the people I talked to when I was doing my homework said that you were an excellent people's person, possibly because of your background from mining stock? One example of that, you were instrumental in setting up or working on the BAS drinks and drugs policy in the Antarctic. One of my colleagues saw your talk about the BAS drink and drugs policy in the Antarctic and we were wondering how important that was to you, because it's all part of the care of the FIDs isn't it really?*

Barry Heywood: Yes, it's so easy. First of all, you're in an abnormal environment. In my time, I introduced women to the Antarctic. I persuaded Dick Laws to let me take them on the ship and from there we put them on a static northern base and from that, David Drewry and I put them in the field.

[01.08.00 hr] Chris Lee: *Why did you want them in the Antarctic?*

Barry Heywood: Well, why cut yourself off from 50% of the brains of the country? And the skills of the country. It was wrong. But in my time, my nurture in the Survey was that it was an all-male environment, but it wasn't a natural all-male environment. We were cut off for nine months of the year and you had to get on with it. We didn't choose our colleagues, we were thrown together. So you were friendly with everybody, although you didn't have a close friend in any of them really, because you didn't want there to be cliques. So one of the things you could turn to would be drugs or drink.

Chris Lee: *It's a Swedish, a Scandinavia question really, isn't it?*

Barry Heywood: Well, I suppose so. My guideline was that I was responsible for the medical side. David Drewry didn't want to do it and I didn't mind doing it, so I took it over. The importance of that was that if we had to have an emergency evacuation to get the Argentinians

Track 15 [01.09.50 hr]

to put a C130 or the Americans to put a C130 into the field at half a million pounds a throw, they didn't want a plea from a mere doctor, they wanted somebody in authority, and although you felt cheap doing it, the doctor told you what was required and you were the one that negotiated to get that put on. So I was in charge of the medical unit, so I could have serious talks with the Chief Medic about drink. I mean drugs is easy – you don't have drugs, although drink is a drug and cigarettes are drugs, but we're talking about this little group of things called drugs, cocaine and that sort of thing. With drink, we could ask 'Well, what is a sensible amount to drink?' and it was these 28 units a week. So my ruling was, taking into account the free drink that we provided, now since the salaries went up, well I went down there for something like £4 a week and so we had free booze. It was half a can of beer a week per man, half a bottle of gin, half a bottle of rum and half a bottle of whisky and all the cigarettes you could smoke, and nobody smoked so they just built up and built up.

But the Survey had stopped providing alcohol, apart from a certain amount for Christmas and Midwinter's Day. So the chaps had to buy their own, so I decreed to the suppliers of booze,

which was the chandlers on the ship or the catering officer on the ship, that he shouldn't sell to any one person more than a year's supply at 28 units a week, and we could easily work that out. So that's what I did and I would talk to the chaps about it and you've got to remember that I had access to them when they were rookies, they'd just come into Cambridge to go down with us and I was the figurehead that had been down there, I'd done it, and so I knew what I was talking about and so I could talk sensibly to them about it and they would listen. And I warned them that if a non drinker tried to buy booze for somebody else, then they'd be in trouble and dismissed.

[01.12.32 hr] Chris Lee: *What do you think people will regard as being your legacy as Director? What are you most proud of?*

Barry Heywood: Well, I've heard that people look back on my time very fondly, because it was a happy time and I don't suppose you can ask for more than that really. I tried to do my best for people and tried to make sure they were happy in their job. You can't do it for everybody but I certainly tried to do my best for most people. I was very proud of being in the Survey and the highlight for me was actually becoming Director, because I couldn't believe that it would ever happen. But you've got to remember that in 1960 I was broken, both physically and mentally,

Track 16 [01.13.28 hr]

having had an horrific accident and wondering what on earth I was going to do with myself and had a fortuitous meeting with Sir Raymond Priestley and the rest is history, as they say.

DISC NO.	TRACK NO.	TIME CODE START	INFORMATION
1	4	14.51 min	Bill Sloman, ex Head of Admin Division
1	4	14.51 min	Sir Vivian Fuchs, ex Director BAS
1	5	19.47 min	Meeting held at 10 Downing Street between Prime Minister Margaret Thatcher and David Drewry and Barry Heywood, following the Falklands War. No specific date given.
1	6	29.26 min	Discovery of the ozone hole.
1	8	34.36 min	Global warming
1	9	39.52 min	Climate change
1	10	44.55 min	Climate change
1	11	49.48 min	Becoming Director/Deputy Director
1	12	54.48 min	Relationship with NERC
1	13	59.50 min	Introduction of the Dash-7 to BAS operations
2	1	00.13 min	Initial work at Signy. Terrestrial and Freshwater biology.
2	5	20.18 min	Damage caused by seals at Signy.
2	5-6	23.14 min	Set up of Offshore Biological Programme and

			modifications to RRS John Biscoe
2	7	30.00 min	Krill
2	8	36.17 min	The Madrid Protocol
2	10	46.32 min	Visit of Cassandra Phillips, Greenpeace, to Rothera, 1996/97.
2	11	53.35 min	Taking over NERC's Arctic operations.
2	14-15	01.07.31 hr	Introduction of BAS drink and drugs policy
2	14	01.08.00 hr	Introduction of women to working in Antarctica.

Two errors in place names corrected by Joanna Rae, 18 June 2010