

JULIAN PAREN

Edited transcript of a recording of Julian Paren interviewed by Chris Eldon Lee on the 22nd June 2013. BAS Archives AD6/24/1/225. Transcribed by Andy Smith, 28th April 2017.

Part One

[Part 1 0:00:00] Lee: This is Julian Paren, interviewed by Chris Eldon Lee, on the 22nd of June 2013. Julian Paren, Part 1.

Paren: Julian Gerald Paren. I was born on the 27th of October 1942 and I was born in Southgate in London.

[Part 1 0:00:19] Lee: So you are now sixty ...?

Paren: I am in my seventies. I was born in 1942. I've had my 70th birthday and yes, I will be 71 in October.

[Part 1 0:00:31] Lee: Fids sometimes can't quite work that out. It's funny how you say 'How old are you now?' 'Errr ...'

Paren: Well I think when you have just passed 70, you can just about do it.

[Part 1 0:00:39] Lee: Yes, OK. Would you say that your father was an educated man?

Paren: My father was I think eccentric in one way. He was educated, yes. He was born in 1901. He went to the local school. I suppose it was a grammar school in those days and he left school at 16 and became an office boy in a company in London and he worked his way up from being an office boy to being I think some sort of company secretary. Educated, yes, but he only had one real interest in life. That was cricket, and I have to say, we are not a strange family but he helped found the Society of Cricket Statisticians and it had four members I think, for a long time, until they changed its name to the Cricket Society and the Cricket Society is now a very large society in Britain. But he is one the four founders of the Cricket Society and he loved cricket and it does have one bearing on my life I suppose, is that he used to take me to cricket matches and I used to be bored to tears at cricket matches and I had one thing, I wanted to happen: I wanted it to rain. And so I used to watch the clouds, and going to cricket to me was watching the clouds, and that got me interested in meteorology, in climate, in weather, and that eventually turned me into the meteorologist I wanted to be. In the end I was a glaciologist, but it was going to cricket, and hoping for rain that was my fundamental thanks to my father for taking me to all those cricket matches. But he was educated but of course he only went to school and he worked his way up from the bottom.

[Part 1 0:02:24] Lee: So the meteorology took hold of you at what age, would you say?

Paren: Oh: 12, 13, 14. No, I was a Boy Scout and a Wolf Cub and I got my Weatherman Cub badge. I got my Meteorologist Scout badge, and I used to have to

take weather observations for a month or so. So I made my own rain gauge and I used to stick, from the *Daily Telegraph* which my father took, the little weather map each day in a little book. And I put my own observations down. So yes I was somewhere between 11 and 15.

[Part 1 0:02:56] Lee: It was serious?

Paren: Yes, but I had been to all these cricket matches and so this was a fact. I wanted to understand weather. I mean, can you understand it, those clouds? It's virtually impossible, and I thought there must be a way of understanding it. And my father was very kind. He decided that if I wanted to be a meteorologist, he would do a bit of research for me and he found out about the Royal Meteorological Society and how they ran courses in the Easter holidays for bright young schoolkids who wanted to be interested in meteorology. And I went on one of these field courses run by the Field Studies Council and so yes, I had a week of meteorology while I was a schoolboy, staying by the Long Mynd in Shropshire, watching the gliders glide and that sort of thing.

[Part 1 0:03:49] Lee: I can see it from my bedroom window.

Paren: Right. Well the gliders couldn't glide because it was too windy when we went to the Long Mynd. That was where they did the ... Preston Montford was the place, the Field Studies Centre there. So that was serious and in the end we found out there was only one place in Britain where you could do meteorology as part of a physics degree rather than part of a geography degree. That was the University of Edinburgh and so I applied to the University of Edinburgh and I did the four-year physics degree at Edinburgh including the meteorology option.

[Part 1 0:04:21] Lee: And what do you think was your first awareness that there might be a place on this planet called the Antarctic?

Paren: OK. I was certainly a schoolboy and is it 1951? Well anyway the ... At school I remember two things quite dramatically. One was the climbing of Everest, and going to see the film of Everest. But we also had a guest lecturer at school who was on the Trans Antarctic Expedition, and he came to give a lecture to the school.

[Part 1 0:04:54] Lee: Which school?

Paren: Highgate School in London, on TAE. And so that was the second thing. He came and talked about the Trans Antarctic Expedition and this was absolutely fantastic, wonderful.

[Part 1 0:05:06] Lee: Do you remember who that was?

Paren: No, I can't remember now who it was. I have got some notes; in subsequent times, of people on the Expedition but I can't now remember who it was. But that was the other thing: I was going to be a meteorologist. I had been excited by Everest, 1953 so I was 11. I was 11 at the time of Everest. That was exciting and then we had the TAE when I was at school. So I think the two things together; it was snow and ice, high places; that was it.

[Part 1 0:05:39] Lee: So how did you go about actually achieving this ambition, then?

Paren: Well, the real ambition was still to be a meteorologist but unfortunately I went to Edinburgh University and started to climb all these mountains, and climbing them in the winter, and it was winter mountaineering that got me much closer to snow and ice. And so I suppose in the end I thought 'Well, some people have to have a professional job on snow and ice. It's not just fun; you can actually have a job on snow and ice.' And it was while at university in Edinburgh that I just, totally by chance, saw that there was a place called the Scott Polar Research Institute. I had never heard of it before and I was in the university library and there was this book called *Polar Record*, a magazine, and *Polar Record* had got Polar Research Institute ... I think it must have been there I saw an advertisement saying they took people to do PhDs and I thought 'PhDs? At Cambridge? Scott Polar Research Institute? I will give it a try.' Yes, and I did. I was maybe the only person who applied that year, but I was accepted and so that was it and I suppose the thing before that, really: I had been to Iceland as an undergraduate on quite an adventurous two-week holiday and I just found that absolutely fantastic. Long hours of daylight; it was all the things to do with the polar regions I liked pretty much.

[Part 1 0:07:15] Lee: You spent 5 years at SPRI?

Paren: Well I probably did. My PhD took longer than it ought to have done but that seems to be the way things are. While I was there, the Polar Research Institute was, dare I say, re-built. It had been just an old museum with a few rooms attached to it and they got grants from America and there was a big opening of the extended Scott Polar, and they put in cold-rooms, three walk-in cold-rooms in the basement of the new Scott Polar. I was around at the time and I had been doing work in the cold-rooms and they suddenly had these cold-rooms and didn't know what to do with them really. I was still there. I had done my PhD and they essentially let me drift on. They paid me as a Research Associate or something. So yes, I did in the end do nearly five years there.

[Part 1 0:08:10] Lee: What was the thrust of your PhD?

Paren: My PhD was on the electrical properties of ice. Now you might say that's an obscure thing to do a PhD on, but the Scott Polar Research Institute was actually leading the way in Britain, and globally in fact, on using radar to penetrate ice sheets to find out how deep they were. Now you probably know that before that it was all seismic explosions and people setting off bangs and they got isolated measurements of how deep the ice was. But with radar, at the right frequency I have to say, you can penetrate the ice sheet and get a reflection from the bottom surface of the ice as well as the top surface of the ice. Firstly it was done by tractors, later by aircraft, and knowing the difference in time between the echo from the top and the echo from the bottom, you could find out how deep the ice was.

[Part 1 0:09:11] Paren: Now that is common knowledge these days but then it was all quite revolutionary but the extra information you get is how much of the signal, the power of the radar pulse, is actually absorbed within the ice, and it was thought that that was an interesting area of study. What could you learn from how little of the

signal came back? And that is concerned with the electrical properties of the dielectric, which is the ice and my PhD was studying the properties of ice that were relevant to the radar absorption of the depth sounding radar used in the Antarctic.

[Part 1 0:09:49] Lee: And was this just science for science's sake, or was there a practical application of this information once you had got it?

Paren: Well what we found was firstly ... No, it wasn't just science for science's sake. The thing was: no one knew whether the radar absorption of ice was simply dependent on the fact that there was ice there, whether it was dependent of the temperature of the ice, or indeed on the impurity concentration in the ice. And it's the impurity concentration in the ice which was the important one because ice is a protonic semiconductor, and being a protonic semiconductor, its properties are very much determined by certain impurities, and the question was: were the very low level of salts and acids and that sort of thing in the Antarctic ice going to determine its absorption? That was important because if the impurity level wasn't important, the attenuation of the radio waves was solely dependent on the temperature profile through which the radar pulse passed. What we wanted to do was learn something about the temperature profiles in the ice, or the typical temperature profiles in the ice, from the total absorption of the radio waves.

[Part 1 0:11:06] Paren: That was the first thing it would be nice to know, or secondly, if it was dependent on the impurities, how dependent it was on the impurities because certainly the further inland you went, the more pure the ice became. Most of the impurities were at the coastline where the influence of the sea ..., and the bottom line was: if you could understand the attenuation or absorption of ice, as a function of impurity level and temperature, you could then predict exactly how powerful your radar sets had to be if you wanted to probe the deepest ice of Antarctica. And therefore it really told you how sensitive you had to make your radar sets, if you understand me. Otherwise it might have been a fruitless task to do the work. And that's how it all started, and I did a first work on it.

[Part 1 0:11:58] Lee: So it was a contribution then, to understanding the history of the creation of the ice sheets in Antarctica? By measuring them you could see how old they were, how deep they were and ...?

Paren: Well it's really ... The simplest thing is just to know how much ice there is in the first place. But the thing it developed into was actually more interesting, is that they found from these radar pulses, that they didn't just get reflections from the bottom of the ice, but they got it from within the ice as well. And you could almost imagine you could see the relict old surfaces of the ice sheet and the question then became: what was it in the ice that, as it were, created within it a reflecting surface for radio waves? The papers I wrote, with the people at Scott Polar, in the end focussed it being on a change of the impurity level in the ice, probably sometimes to do with volcanic eruptions, because that just puts acids on the ice, and sometimes just the changing circulation pattern of the snow, where it came from. It was a nice background because if you do all this radar sounding of ice, at least it's worthwhile knowing why it works, how it works and the physics involved. And I suppose I started that off and subsequently other people have taken it further.

[Part 1 0:13:32] Lee: You were doing all this, of course, without actually having been there?

Paren: Yes, that's right. But you might say the nice thing about Scott Polar is they were very laid back in Scott Polar. I hadn't been there but most of the measurements I took were done in the US Army Cold Regions Research and Engineering Laboratory in Hanover, New Hampshire. So I went to (I'll say it again) the US Army Cold Regions Research and Engineering Laboratory which was just a front, actually. Part of it was a front for surveillance of (which war were they on?), not the Korean War, the Vietnam War.

[Part 1 0:14:16] Lee: In the late 60s?

Paren: Yes, the Vietnam War. In the basement was all secret ... I was taken down there once and no-one was meant to know it existed but it was where they analysed all the satellite imagery from the war.

[Part 1 0:14:28] Lee: When you say it was a front, I'm sorry just to press that point a little bit. Presumably what you were doing wasn't a front?

Paren: No no. The top two storeys were the US Cold Regions Research and Engineering Laboratory, and that's all it said on the front door, but in the basement, under the floor, was another organisation.

[Part 1 0:14:45] Lee: And you were told this? You saw it?

Paren: I was taken down, yes.

[Part 1 0:14:48] Lee: So it wasn't that secret?

Paren: No, but no-one on the outside would know, and I suppose like all these things, probably the American public knew that there was such a place but didn't know which city it was in or whatever.

[Part 1 0:14:59] Lee: But you weren't signed to secrecy or ...?

Paren: Yes, essentially.

[Part 1 0:15:02] Lee: You were at the time? OK.

Paren: It's all right.

[Part 1 0:15:05] Lee: It's all right now, yes?

Paren: While I was in Scott Polar, I was given three months off and I went to Greenland to actually accompany a geologist who was doing three months of field work on the east coast of Greenland. They wanted someone they felt was reliable (ha! ha!), reliable, a good mountaineering sort of chap who would look after the radios and also run these rubber boats. We went two or three hundred miles in a rubber boat down the east coast of Greenland and that was probably one of the most exciting

things I have ever done actually. So again I got experience of the Polar regions and I did have a spell of ... I hadn't been to the Antarctic, but certainly between my PhD, I also worked on the glaciers of Axel Heiberg Island in northern Canada. So I had three months field work in northern Canada, actually putting wires over the glaciers, believe it or not, doing experiments which everyone thought would tell me about the conductivity of ice. But in fact it told me something slightly different. It hadn't been a well thought through experiment. My supervisor hadn't thought it through properly and when I did it I hadn't thought it through properly but later on we worked out exactly what I had been measuring. It was all very very useful indeed, very useful but it wasn't quite what they expected me to have discovered.

[Part 1 0:16:32] Lee: All the time this was going on, there must have been a growing urgency within you to actually head South at some point in your life?

Paren: Yes. I knew that in the end, being in the Polar regions was the thing that I enjoyed the most and there was this break. I finished at Scott Polar; I couldn't do any more work there. They had run out of work, run out of money or run out of patience. I'm not sure which it was and I got a job for four years at the University of Birmingham where I worked with probably Britain's leading ice physicist of the day, who called Dr John Glen. He is a real theoretical whizz-kid. He's still alive today. He's a respected Father of Glaciology and I worked there for four years and it was while I was there that I was (if I can use the word) head-hunted. I wasn't really head-hunted but I met Charles Swithinbank on a number of occasions and he said 'Look, there will be a job coming up, working under me as a glacier physicist. You are a glacier physicist. Do think about it seriously.' He told me all this, he interviewed me and then I had to wait nearly another year before the money came through for the job to actually be there. It's one of these frustrating things working for BAS and it has happened recently for other people too. They identify a need for a job, they interview you and then for some reason someone elsewhere says 'Ah ah, austerity' or 'there's no money'. And they don't keep you informed. They say 'Just hang on. Just hang on.' Eventually the job did exist.

[Part 1 0:18:17] Lee: So were you interviewed? Or was it a foregone conclusion?

Paren: No. Apparently I did badly in the interview.

[Part 1 0:18:25] Lee: So it must have been a foregone conclusion.

Paren: Well maybe. I don't know if they interviewed anybody else. It was a very formal interview and I was asked some searching questions about what I would do to improve the standing and status of glaciology in the Antarctic. I had never been there. The Antarctic Peninsula, which is where I knew the job would be involved, in the Antarctic Peninsula, glaciologically isn't very important at all. It's just a little finger of land pointing out and the real glaciological problems really concern the huge mass of Antarctica which is beyond the Antarctic Peninsula. So I didn't have a very good answer about what I really wanted to do. I was phoned up soon afterward to be told I damn well ought to have known what was important about the glaciology of the Antarctic Peninsula. And then a bit later of course, Charles Swithinbank wrote a paper for *Polar Record* called 'The Imperatives of the Antarctic Peninsula for Glaciologists'. He knew the answers. He didn't have to ask me.

[Part 1 0:19:43] Lee: This was 1975 and you were appointed as Head of Glacier Physics?

Paren: Yes.

[Part 1 0:19:49] Lee: And you still hadn't been there, so what were you doing behind your desk in Cambridge?

Paren: I joined in January and I went out in September, so I went out quite soon afterwards. But the way these hierarchies work is: I was appointed Head of Glacier Physics and therefore I was appointed head of people who had been there a few years, or in fact new recruits, people who had been there, people who had come back, or people yet to go. So I already had my team and here was me, thrust in from outside.

[Part 1 0:20:29] Lee: How was that?

Paren: Well it was all right. The glaciology they were doing was very, was very what I call things to do with numbers, very numerate. It was surveying and things like that, which of course I had never done any surveying, but I could recognise that surveying was something that was inherently ... it was doable. You surveyed something, you surveyed it again, you worked out how fast things had moved, so I was quite ... I understood what they were doing but they needed to have a boss. So that was me and while I was there, I actually ... This was in Cambridge and I have to say to start with the glaciologists in Cambridge were actually working in the Scott Polar Research Institute. So I had been in Scott Polar; I had gone to Birmingham and now I was back in the Scott Polar and in fact I was still writing papers with people in Scott Polar. So it was all a bit incestuous; not incestuous but I hadn't been very far away. So I was looking after new people and getting to know what they were doing and at the same time planning my first field experiments in the Antarctic.

[Part 1 0:21:45] Lee: So let's talk about that first trip South. First of all, how was it? I mean was it everything it was cracked up to be?

Paren: It was good. It had its bad moments, I have to say. I was put in the Antarctic with a chemist, a very good chemist and I am still in contact with him, and he was doing work on the lead content of snow, and that's an extraordinarily difficult thing to do. One part in 10^{13} , one part in 10^{14} lead in snow, and he had to work in a very clean environment. I was also put in an extremely clean environment to do measurements on the electrical properties of the ice, and I took all the kit with me. But we were static. We didn't have skidoos. We were what they call a fixed field party.

[Part 1 0:22:42] Lee: At Rothera, I presume?

Paren: Well in the middle of nowhere.

[Part 1 0:22:45] Lee: Oh right.

Paren: We were on the plateau, on the plateau of the Antarctic Peninsula in a place that we call Bullihole. I'm not sure why we call it Bullihole now. It didn't have a name and there we were, a fixed field party. Mike was doing his chemistry.

[Part 1 0:23:04] Lee: Mike?

Paren: Mike Landy was doing his chemistry. I was doing work on ice cores, drilled ice cores studied between bits of metal and tried to work out how conductive they were and quite a few things about them, and we were static on the plateau. And then after about a month to six weeks of that, because I was Head of Glacier Physics, I then toured the other glacier physicists and helped them do what they were doing. Not that I was leading it; they were doing it and I joined them really to get my feeling of how the Antarctic field season worked. And that was much more light-hearted. I didn't feel I was being very responsible. I could go and work on other people's work and get to see how field work worked in the Antarctic. So that was good.

[Part 1 0:23:59] Paren: The only downside of it was that eventually, later in the season, I wasn't in a static field party and we had skidoos that did not work, and they were the oldest skidoos that BAS had. In fact I made a complaint that the skidoos weren't up to it. Everyone said they weren't up to it, and in the end I was taken to the highest authority and told that 'they were perfectly adequate skidoos' and that you didn't understand them. If they didn't work, it was your fault. I was made to feel extremely small. All I was really doing was reflecting the concerns which people had spoken to me in the field, and yet officialdom didn't want to know, and I was made to feel, at the very end of that field season, as if I was the newcomer who was just trying to be too hard, above my station or something. The base commander was against me; they were all against me because I had stood up for the field people and the GAs who said their skidoos were just not up to the job.

[Part 1 0:25:05] Lee: Was that an incident, or was that a symptom of a more general malaise in BAS at that time?

Paren: No I think I was just unlucky that this was a transition between the dogs and skidoos, and they hadn't really got to know how to use skidoos, or got the right skidoos for their work in the Antarctic. Or indeed the people trained to maintain them hadn't quite worked out how to do it. In fact it did seem strange at the time. When these skidoos are used in Canada, because that is where they came from, I think they used a 1:50 oil mix, but we were told we had to use a 1:20 oil mix. I don't understand it, but these are the things which in the end spoiled the end of the season; it just spoiled the end of the season because I believed firmly that we had been given duff skidoos. Everyone said so and I decided it was my role to pass on the concerns.

[Part 1 0:26:06] Lee: So the poor quality of the equipment was affecting your efficiency in the field as the ability to collect science?

Paren: Yes, it was affecting my colleagues. For me I was almost freeloading at that time. I had done my work earlier in the season. Yes, I felt that was the case and I felt that in the end, the base commander didn't like criticism of what he thought were his engineers, and BAS didn't like criticism that someone thought the skidoos were wrong.

[Part 1 0:26:41] Lee: Did this damage your prospects at BAS?

Paren: I felt it did, but I don't think in reality it did.

[Part 1 0:26:52] Lee: A tricky start then?

Paren: I'd had a wonderful field season. I'd been away; I'd experienced the Antarctic and I really had done everything I thought in my powers to mess in and just to be 'one of the boys', whatever you like to say. And then at the end, because I was a Division Head, and all the rest of it, I felt it was my responsibility to do this and that just spoiled the end of it.

[Part 1 0:27:24] Lee: All right. But there are some happier moments. A couple of anecdotes from your time camping with Mike Landy. One about Christmas 1976 at Bullihole, and there were some samples arrived by air in small plastic bottles. Do you remember this?

Paren: Mike will remember. No I don't. I ought to check my diary again.

[Part 1 0:27:44] Lee: No no. Well it just says he may not in touch with you.

Paren: Ah, the whisky. Yes, quite. Well done Mike. Mike was collecting lots of samples. We all do. We were drilling holes for collecting up water samples, oxygen isotopes. Everything was in the end for oxygen isotopes which was to give you the past climate, and BAS must have had a few tens of thousands of these small sample bottles. They are everywhere. They are sterile and clean and we filled them with water. That's quite a carry on. Yes, that's right. We had some alcoholic refreshment came in these bottles.

[Part 1 0:28:27] Lee: They were air-dropped were they? They arrived by air?

Paren: OK. Well I mean the planes do land. We weren't a high priority. We were a campsite that was totally self-sufficient. We didn't need more fuel. I don't remember the exact details.

[Part 1 0:28:49] Lee: OK. Well all I can tell you is that you struggled to get into your sleeping bag that night.

Paren: Oh well. Thanks. Yes, that is right. [Laughs] Yes, that is true. That was very much around Christmas, yes, but we did have the poorest weather I have ever known in the Antarctic around that Christmas time. It may seem just curious how it goes with the time, but essentially between Boxing Day and New Year's Day, which is about seven days, we were hardly able to leave the tent. It was absolutely awful. You were asked for your weather observations each day, and I had started off by saying '30 knots, gusting 40 knots.' The next day the wind was really stronger so I say '40 knots, gusting 50 knots'. About three days later, I was saying '80 knots, gusting 90 knots'. In the end they said 'What are you playing at? It's not 80 knots, gusting 90 knots.' But it was absolutely ... How you measure wind speeds like that I do not know but if you went out of the tent, as you had to to check the guy ropes and things like that, if you

held your hand out near the tent, you could only see about half way down your arm. After that it had all disappeared in the swirling snow. In fact even walking round the tent, just trying to go round the tent, in the end I couldn't even see where the front door was. You know you are going round but a tent is pyramidal and you went round the tent and you just tried to work out where the front door was, you couldn't see it. It was just ... Any way what I am saying is it was the worst weather I had ever known in my life.

[Part 1 0:30:42] Lee: Genuinely scary, was it?

Paren: It was genuinely scary, absolutely. It was the worst weather I've known in my life, and another party, a chap called Les Sturgeon who everyone calls 'Lie-up Les', he was about twenty miles from us on the same backbone of the Antarctic Peninsula. He was a geophysicist on a travelling party and he did not move camp for 16 days because the weather was so bad. But he had to travel; we were static. But the weather was absolutely diabolical. That wasn't my scariest moment; that was scary though.

[Part 1 0:31:19] Lee: How did you cope with bodily functions, having to go to the loo?

Paren: Well I'm afraid you do things in the tent. Of course a pee bottle is quite a straightforward thing but ...

[Part 1 0:31:30] Lee: Number twos?

Paren: Number twos: we had some metal trays which had food in at one time, and they were used as receptacles. But no, it was absolutely awful.

[Part 1 0:31:44] Lee: Did you fear for your life at that point?

Paren: No. People do tell you about the tents. They tell you they are made to withstand 150 knots or 150 mph if they are well pitched. Well certainly our tent was extraordinarily well pitched. It had been there for probably a few weeks although you do move a tent around because once it's in, it starts to go down in the middle, just because of the heat and you are pressing on the ground. In the end, everything becomes like a bowl and therefore everything faces in and you don't get your horizontal surfaces any more. So in the end, you do have to repitch a tent, but once you have been in a tent a few days, virtually all the air leaks you might say have been filled with snow and the tent is extremely secure. Although the wind was excessively strong, and it was awful, it was awful those few days, I will say that I didn't fear for the tent because we had just been pitched. The people who in fact suffer in the Antarctic are people who get caught out as the weather changes, and put a tent up in a hurry. They don't put it up quite properly and then the wind gets underneath it and they find they are spending the night in a collapsed tent and that must be dreadful.

[Part 1 0:33:07] Lee: I think you might have hinted that wasn't the worst experience. Was there one that was worse?

Paren: OK, there was one thing I felt was most scary about was that we were camping at a place called Charity. There is an expression 'as cold as charity' but it is one of the

highest points in the Antarctic Peninsula, and there is a nunatak which they call Charity Nunatak, and in it, because I'm afraid we were a bit marking time. Our field season had gone wrong because we had lost an ice drill.

[Part 1 0:33:44] Lee: I will come to that.

Paren: Yes. We were at the side of this nunatak, in an extraordinarily windy place and I had created a new field season which wasn't particularly impressive and what we wanted to do. But on the side of the nunatak was a snow slope and because it was such a windy place, we excavated an ice cave. This was something to do in the bad weather really. We excavated an ice cave and then we moved into it when we possibly could and the thing about an ice cave: you had to have an entrance of course and once you are inside it, everything is extremely quiet, extremely quiet because you are underground, as it were. And although the ceiling drips, which isn't very nice, it's a completely different experience from being in a tent. It's much colder than being in a tent because in a tent, you only have to heat up the air in the tent. If you are in an ice cave, essentially things start to drip and all your heat tries to get into the ice, I guess.

[Part 1 0:34:49] Paren: Anyway we had our tents just under the nunatak, probably nearly a hundred yards from the nunatak, and then we had an ice cave, and we used to go between one and the other. Now we never marked the route between one and the other, but it was less than a hundred yards and on one occasion we were in the ice cave and the weather just turned awful. We had all the sleeping bags and everything down in the tents. We were in the ice cave and the weather turned bad and we had no knowledge of it because we hadn't heard it. It was really eerie, and we had to get from the ice cave to the tents. My colleague went first.

[Part 1 0:35:38] Lee: Who was?

Paren: He was Tim Fogg. I was second and he seemed to disappear into a cloud of snow and there was me. I couldn't see his tracks and I couldn't see him and I knew we had to go downhill but I had difficulty finding the tent. My sense of distance got all wrong. I felt it had to be just there and it wasn't. 'Now then, if it's not there, is it farther away or have I gone past it?' And that was the one moment when I realised how stupid we were. We hadn't marked a route and it was 100 yards and I couldn't even see my colleague who had gone ... who was, theoretically, a few feet in front of me. But I got to the tent without Tim having to come back and find me and I think that is the most relieved I have ever been.

[Part 1 0:36:32] Lee: So did that change your relationship with Antarctica, that suddenly the Antarctic was showing who was boss?

Paren: No, I think I was just stupid, but the fact is: we were in an ice cave. I have to say it was Charles Swwithinbank who was my boss for these years, said that he could never understand why people got caught out in the Antarctic and I agree with him. In the Antarctic, if the weather is good, you can see for a hundred miles. If there's a mountain a hundred miles away, you see it. Now to see bad weather come in is so easy. As long as you can see all around you, you can definitely see bad weather come in and I reckon you always have six hours notice of anything really going to go wrong. And yet (I don't think this is said often enough) you really can see

everywhere. It's not like there are tall trees blocking out a view one way. You know when the weather is changing. It's just when you are sitting in an ice cave without hearing anything. I think the sound is just as important as the view. My impression of the Antarctic is: it is peaceful. It has a nice climate if you like that sort of thing, and I do like that sort of thing. I think it is actually friendly. I don't see the vicious side of the continent. I think if you learn to treat it properly, and watch, it's as safe a place as anywhere really.

[Part 1 0:38:14] Lee: Mike Landy asked me to remind you of an evening traverse along Reptile Ridge near Rothera. Is there something special about that?

Paren: Well do you know ...? Have you been to Rothera?

[Part 1 0:38:25] Lee: I have, briefly.

Paren: Well there was a gorgeous evening, and in those days you could just borrow a skidoo and just skidoo out of base and if you were about five miles out of base, you get to one side of Stork Mountain. You could climb Stork Mountain and start a traverse of Reptile Ridge, and the view the other way: you can see all the ice falls, the wonderful mountains and when the sun is low in the sky, as it was that evening or evenings like that ... When the sun is low in the sky, I think you see the Antarctic at its most beautiful and it was a warm, crisp, clear traverse of Stork Mountain and part of the Reptile Ridge. We didn't do it all. Which was just so different from being cooped up in an Antarctic base, so it's like you really had got out. It was another world. You'd gone far enough, five miles, and it was just lovely, yes.

[Part 1 0:39:38] Lee: And conversely, was it at Charity that Tim Fogg played the silent penny whistle?

Paren: Yes.

[Part 1 0:39:43] Lee: Tell me that story.

Paren: Tim Fogg you may know. You may not know him.

[Part 1 0:39:49] Lee: I've come across him on television I think.

Paren: Yes, he is in all the David Attenboroughs. If David Attenborough was up a tree or up anywhere, there would be a person at the bottom who is sorting out all the ropes. That's normally Tim Fogg. His father was Professor of Marine Biology at Aberystwyth. He was brought up in a very scientific family and his job now is purely rope access work. Yes, he was my GA for a summer. This was at Charity. We'd had bad weather and he always had his penny whistle. He lives in Ireland now; I think he is actually Irish, and I have the recording. I have a recording of him playing his penny whistle with a little cheap tape recorder, and you can't hear him. You can just hear the fact that he is playing a penny whistle and yet the microphone was right by it, because all you hear is the noise of the snow, the spindrift on the side of the tent. All you hear is the extraneous outside noise although I am right by the penny whistle.

[Part 1 0:41:08] Lee: So to drown out an Irish penny whistle, it must be pretty loud.

Paren: Yes, it was uncanny, but we thought it was so funny, and on the recording I've got, it's him playing it and then I play it back to him and then he makes some comment about he couldn't believe that was the best I could get of him playing the penny whistle. But that noise was fantastic.

[Part 1 0:41:39] Lee: Tell me about the drilling. How did that get underway? What was the impetus behind the drilling programme?

Paren: Well BAS didn't have that much expertise at the time of real ice core drilling other than what we might call what you do by hand. Now I have done a lot of drilling.

[Part 1 0:41:58] Lee: Augers?

Paren: Augers. I have done a lot of drilling by hand and if you drill by hand, you can get down 10, maybe 15 metres. It's hard work, You appreciate you are doing it by hand, in the old days, doing that or moving the thing round, and with enough poles you can get down 15 metres. But BAS wanted to do a programme of ice coring in the Antarctic Peninsula going down about 100m or more. Well BAS didn't have the technology to make the drills and we didn't have our own drill and so BAS very kindly did a deal with the Americans and we would provide, BAS would provide two drillers to work with an American team doing a 100 metre drill at Siple Station in the Antarctic, which is just down the Antarctic Peninsula. And then essentially we would take over the drill, the people trained would take over the drill and drill in the Antarctic Peninsula elsewhere as part of a cooperative programme which was called GAP – Glaciology of the Antarctic Peninsula. I did that and also because, again political reasons, this is where the Argentinians came in. Because it was the Antarctic Peninsula, we, being BAS, invited an Argentinian glaciologist to be also trained to work with BAS to do the Antarctic Peninsula glaciology, which requires more than one nation to do. This was before the Falklands War. And so Pedro Skvarca and I went to Siple station and were trained to use this drill but it didn't work out. We lost the drill and how we lost the drill, I do not know.

[Part 1 0:44:01] Lee: Even now?

Paren: How we lost it?

[Part 1 0:44:04] Lee: Yes.

Paren: Well it got stuck. Drills get stuck and how do you get them out when they are stuck?

[Part 1 0:44:10] Lee: This was a hot water drill?

Paren: No. This was an ice coring drill. We were actually getting ice cores. This predated hot water drilling. Yes, the drill got stuck and there is only one thing you can do when a drill gets stuck. You essentially pour antifreeze down the hole. Of course we were supplied with the antifreeze, just in case this were to happen, but it didn't unstuck it. So in the Antarctic is now an ice coring drill, quite an expensive one, made

in Switzerland, a Swiss ice coring drill that actually belongs to the Americans, and I lost it.

[Part 1 0:44:51] Lee: Was that an inevitability? Looking back on it, was it bound to have got lost at some point?

Paren: Yes. All drills ... A drill always will in the end get stuck. This drill hadn't got stuck before. They often get stuck and they get pulled out again, but this one got stuck and could not be pulled out. But I will say on this occasion, I wasn't to blame. It was just one of those things.

[Part 1 0:45:26] Lee: But did it ruin the programme or did you have a second drill?

Paren: No, we didn't have a second. It ruined the programme. We had 35 metres of ice core. We wanted to have 100 metres but got 35 metres ice core but no more, and no drill. And the Americans took it very well. My boss took it very well but I felt awful about it. No-one said 'That's was £20,000 of ice coring drill.' But anyway the net result was: OK, I lost it. It would have become communal property I believe. The Americans were going to give it to the British and the Argentinians to carry on this programme of glaciology, but based on it we were given the drawings. We had the drawings of the drill and we got firstly an identical drill made. I tend to guess it was an identical drill made in Britain to the drawings provided by the Swiss. And in the end we employed very good engineers who worked out how ice coring drills should work and, I would say, improved them. And then eventually we had the capability, not of having them built in BAS, but having them designed in BAS to do our own ice coring programme.

[Part 1 0:46:53] Lee: Did any more of them get lost?

Paren: Not as far as I am aware. No, I think that was the last big one that got lost.

[Part 1 0:47:02] Lee: And what would happen to this 35 metres of ice core that you managed to pull up?

Paren: It was analysed mainly by the chemists. Some of it gets melted. Well in the end it all gets melted. You do the basic stratigraphy. Can you see any dirt in it? Do the bubbles change? But virtually all the information of any relevance is actually from water samples that you get from it, so you melt quite a lot. You sometimes do the melting in the field; sometimes you take the cores home. Well these cores came home solid.

[Part 1 0:47:44] Lee: And was that really giving you information about climate change then in the Antarctic?

Paren: OK. The two things that you want to do with ice cores: one is to find essentially what the local climate is, and the longer term thing is to find out about whether that local climate has changed. And to find out whether a local climate has changed, they normally go to quite significant features of the Antarctic, like domes, tops of islands and you do as long a record as you can get. And that goes back and back and back in time, and that is what you want a really deep drill for. The drill I lost

could only have gone 100 metres. Now a hundred metres these days is not that much. I think you will find now that in the Antarctic, there have probably been something like 70 hundred-metre ice cores drilled. There haven't been that many thousand-metre ice cores drilled or three-thousand metre ice cores drilled but the hundred-metre ice core drills really are to give you a local climate and so even 35 metres of ice core would give you a pretty good idea of the local climate at that spot. And I suppose the reason you want to know these things is so that you can understand ... First of all you find out what the local climate is and then you try and understand it. If you can understand it, you can then begin to predict how it might change in the future. So it is: understanding the present with a hope of working out what it is going to do in the future.

[Part 1 0:49:27] Lee: So were you personally involved in these much longer drills, three-thousand metres?

Paren: No. How I was involved in a strange way, is that my PhD work had led an understanding of the relationship between the impurities in ice and the electrical properties of ice. So it is relating the electrical or the dielectric properties of the material to its impurities, which I found was extremely closely related, and so the deep ice cores that people have looked at in the past have been using an electrical experiment to quickly determine the impurity levels in the ice. The first time this was done was by BAS people who worked for me, and then the BAS contribution to these international projects in Greenland and the Antarctic. So the only reason BAS got into big programmes was because we had this technique of quickly working out how impure the ice was. It was useful because if you have three thousand metres of ice, and you have only got time to process, or to do a very detailed analysis of, shall we say, 15–20 metres, which bit do you choose? You want to choose where things are changing rapidly or something fundamental happens and by running this dielectric analysis you quickly identify those places. So it was a way of getting quick results just when an ice core comes out of the ground, without melting it. Without melting it you can suddenly find out the interesting sections.

[Part 1 0:51:19] Lee: You talk about leading this to some very important discoveries. So can you give an example of a very important discovery that your deep drilling programme ...?

Paren: The importance of the Antarctic Deep Drilling Programme was essentially ... The most important feature of the Deep Drilling Programme has been determining how the climate has changed at a date which you can determine. It's knowing both the age of a bit of ice and what the temperature was at the time that ice fell, and to know both the age of the ice and the temperature requires quite a lot of extra information, other than just the depth the ice was in the ground and its isotope levels. So in my view, everything to do with the history of climate through ice cores relies on a lot of subsidiary information other than just the depth and the isotope value. But once you have all this information, you can begin to plot how temperature has fluctuated over hundreds of thousands of years, and to date in the Antarctic we have a very good record of how the climate has changed over 800,000 years, which is a significant time period. And it is not just how much the climate has changed; it's also how much the greenhouse gases have changed over 800,000 years, and the two together are remarkably similar – have certainly very similar time structures. So you can say, I can

say, and most scientists will say that there can be no doubt about how important CO₂ is in the eventual climate of the world over that time period.

[Part 1 0:53:14] Lee: So hot water drilling, which you were also involved in instigating in the Antarctic, that's a very different kettle of fish, is it?

Paren: Yes, I did quite a lot of hot water drilling. Hot water drilling just makes you a hole. It does nothing more than that. It makes you a drain pipe of hot water. You start with the hottest water you can get, under pressure, and you fire this water under pressure straight down from some sort of lance that is on a pulley. You have a pulley; you have a thing that looks like a lance and fire hot water out of it and one thing is for sure: the water goes down under gravity and in the end the whole thing goes down the hole which the steam and hot water has made. It's actually hot water and so you can actually create very very vertical holes just by slowly lowering something which is belching out hot water around it. And the only problem about doing anything like that is that once you stop putting water through it, it starts to freeze up because in the end you have got water surrounded by ice. The ice can be mighty cold and the natural thing is that the whole thing is going to freeze again. So if you are hot water drilling, you have to have a reason for doing it. You have to be able to use the hole that you have got while it is still water and then if you are going to dangle anything in the ocean beneath, as you often are going to dangle things into the ocean beneath. If you want to recover them, you have got to get them back up the hole before the hole freezes.

[Part 1 0:54:56] Paren: Now the things that I was involved with to start with was to use a hot water drill to put things in the ocean beneath and then let them freeze in. So the idea to start with was a hundred metres of ice such as you have on the George VI Ice Shelf in the Antarctic, to penetrate the ice sheet with hot water, put the equipment in and then let the thing do its work with a data logger at the surface. And come back a year later and pick up all the data. That was the sort of thing that one did. So you had to employ drilling engineers to construct the hot water drill and again that was something that hadn't been done before. We had three hot water drilling engineers. Each of them improved what the chap did before.

[Part 1 0:55:48] Paren: It's nerve racking, but ice core drilling: you can drill an ice core hole and (nearly true) if you stop drilling, you can essentially just stop for a night and then start drilling the next day, but even then the hole tries to close. The pressure of all the ice wants to close anything that you make in the ice. But ice core drilling, yes, in the end the hole does close if you don't put the drill up and down. But hot water drilling, you can't just stop. Once you start, you have got to go right through the programme. And so you theoretically need good weather and you theoretically need a lot of power, a lot of heat, a lot of petrol and a team because to start off with you have got to make the water in the first place and that means shovelling an awful lot of snow and melting it before you can even start the job. So you need a huge reservoir of water which you have to make and then, once the game starts, you have just got to keep melting water.

[Part 1 0:57:01] Lee: We are recording this interview not long after the Lake Ellsworth drilling project came to an unfortunate conclusion, came to an end. What went wrong and was it predictable?

Paren: What went wrong is that the problem you have is you always need water. You need water to run hot water drills. Now the easiest place to keep the water, believe it or not, is actually under the ground, in a cavern under the ground. We had big ponds on the surface, we had tanks, rubbery. I forget what they are called now but rubber containers on the surface, enormous amounts of water.

[Part 1 0:57:45] Lee: Flubbers?

Paren: Flubbers. Exactly so, flubbers. So we had our flubbers on the surface. We weren't in a particularly alien environment. In the summer in the Antarctic Peninsula, on the surface if you are fairly low down, near sea level as we were, if you put water in a flubber, and it was midsummer, the water wouldn't freeze. There is too much sunlight and all the rest but where these people were working on Lake Ellsworth, the ambient temperature was actually very low because they were a long way inland. So the theory is: the best thing to do is to have your water reservoir below the surface. So you actually put something down and then you get so far down with your hot water drill and then you change the drill so it starts to melt like a pond but totally enclosed. And you do that quite a long time and then that water, OK, is surrounded by ice but it is out of harm's way and it is your huge water reservoir. That is below the surface.

[Part 1 0:58:58] Paren: And then when you drill down to the bottom, you have to obviously be able to use that water. And somehow in the Lake Ellsworth drilling, the long deep hole that they were doing, somehow lost contact (I don't know how it happened) with its underground supply of water. And so in the end, the water that they had spent all this power and energy and all their fuel had been to make this huge pond which they were to use to drill the hole, the pond for some reason didn't become available. Somehow the drill must have missed it. But then they had no power left. They had expended all their energy in melting water which could no longer be used for drilling the hole. And so they had got no fuel and they had got water where they didn't want it. There is no alternative.

[Part 1 0:59:52] Lee: That must have been deeply frustrating. I think probably you were no longer with BAS at that point?

Paren: Oh no no.

[Part 1 0:59:58] Lee: But even so, you must have been horrified by the frustration of all that?

Paren: Well because I knew the history of it, I knew this was the pinnacle. This was the ultimate thing that hot water drilling was going to do, and BAS had never had a problem in its hot water drilling. Now this was a different order of magnitude. In fact there were different engineers employed. It became not just a glaciology thing. It became a whole BAS thing and other people got involved and it was the big profile event for the season. Now what you also will know is at critical time for the future of BAS because the future of BAS was the topic last year. There was a lot of pressure from high up, from NERC that BAS was going to be reduced, both in status and in funding. And the background of all this agony about the future of BAS was going on when this hole was being drilled, this foremost project with the BBC there in the

Antarctic, and it failed. And it couldn't have failed at a worse time; it really couldn't, because people thought 'The Americans can do things like this; the Russians can do things like this. This is another Mars thing¹.' And yet we had actually failed. So it was frustrating scientifically but I would have said, politically, it was about the worst thing that could possibly have happened.

[Part 1 1:01:39] Lee: The failure then was unexpected? Nobody predicted it could go wrong?

Paren: No. If you make an underground reservoir, an under-ice reservoir of water for use in hot water drilling, no-one has failed to connect with it again.

[Part 1 1:01:56] Lee: Interestingly, it didn't damage the politics because BAS survived the onslaught from NERC and here, as you say, was a perfect pawn in the game.

Paren: Well BAS did survive, OK. BAS survived because of ... I will tell you why BAS survived.

[Part 1 1:02:13] Lee: Please do.

Paren: BAS survived because, over the last years, BAS has invited influential people as guests, as VIPs, to go to the Antarctic, just for four or five days. Little quick tours. Everything goes right. The weather is right. I don't know why it is so good but the VIPs go: nothing goes wrong and they have a quick tour round and they think 'My God, this organisation is absolutely superb.' And then what happens: these people become lords they get knighted or they move up from their ministerial positions or wherever they go.

[Part 1 1:02:47] Lee: We are talking about Baroness Scotland, aren't we, for example?

Paren: Yes. But Lord Oxburgh and people from Cambridge University. Some people who were influential in the Natural Environment Research Council, have ended up in the House of Lords, they were pushed upstairs, and they are the people: they may have had their background in NERC, and that might have been their day job, but they went to the Antarctic. It was lovely. And suddenly in the House of Lords, the debate in the House of Lords; I have never seen ... Well the debate in the House of Lords really gave BAS its future. NERC then had to go to the Science Committee, the House of Commons Science and Technology Committee and they were given a roasting by that committee. OK so politically BAS won absolutely: BAS 1 NERC 0. But politically is one thing; where the money comes from is still another matter. They haven't actually, as far as I know, totally changed the finances of how BAS is going to be funded. It's just that the political battle to keep BAS as a household name had been won and at the same time people will think it very odd now if BAS doesn't get the money it needs to do its job. But I still think that is a second thing. The political battle is won to preserve BAS but I don't necessarily think that BAS's finances are going to be as good as they want to be.

¹ He may be referring to the failed British astrobiology mission to Mars, Beagle-2.

[Part 1 1:04:27] Lee: So battle number two is still to be fought, is it?

Paren: I would have thought so.

[Part 1 1:04:30] Lee: Were you surprised that BAS won that argument? Because it looked pretty grim didn't it? With the Chief Executive's resigning.

Paren: A lot of people, the BAS Director resigned but I am sure he was given a nice golden handshake. People do think he should have fought on and fought on but I am sure it was made it worth his while to resign and that is the only thing that worries me. The people at NERC have always wanted more control of BAS right from the earliest stages, so it was a natural progression to try to change the name of BAS. They wanted it to join with the National Oceanographic Centre, and its standing would have been reduced but that ... Did it surprise me that BAS won? I think BAS ought to have won but I didn't think they would and I am amazed at the things that were said in the House of Lords and I am also surprised how grilled the NERC people were in the House of Commons Select Committee.

[Part 1 1:05:50] Lee: Do you think there were still rays of glory from the discovery of the Ozone Hole, that parliamentarians still remember, even though it is now a quarter of a century ago? Still remember that ground-breaking research that Joe Farman, the late Joe Farman, did, and his colleagues?

Paren: Has Joe died?

[Part 1 1:06:08] Lee: Joe Farman died a few weeks ago, yes, maybe a couple of months ago.

Paren: I didn't know that. OK.

[Part 1 1:06:16] Lee: He had a stroke some months ago and passed away. Sorry I didn't realise you didn't know that. Well you live on a Black Island in Inverness, so ... However my question is: do you think that ground-breaking research of a quarter of a century ago still has currency?

Paren: Yes, I do. I do and I think BAS has played on it. You may have interviewed the folk involved. It was a very interesting time at BAS. The two things happened at the same time: the Falklands War and the Ozone Hole. Those two together ... You might say if there hadn't been a Falklands War, and Mrs Thatcher making all her promises about the South Atlantic, (I should say the Antarctic, but the South Atlantic), her promises that this couldn't happen again and she would strengthen Britain's role in the South Atlantic. And the discovery of the Ozone Hole, this whole battle with NERC would have happened years ago. So that really did postpone the reduction in strength and power of BAS to the advantage of the universities. I think Antarctic research became more and more important with the Ozone Hole and discussions of Global Warming become more and more important. But I think it probably would have become more financed through the universities rather than through the organisation that we know as the British Antarctic Survey.

[Part 1 1:07:50] Lee: One more question and then we will break briefly, and I would like to go back to the Lake Ellsworth Drilling Project. Were you entirely comfortable about that, because there were objectors who were concerned that breaking through into these under-ice reservoirs was going to be ... was going to compromise their science?

Paren: Well, dare I say it, there are so many underground lakes in the Antarctic that one can put on a map, there are so many of them. Now I am not sure how many of them interconnect but they obviously don't all interconnect. I think it was important that at least one of these lakes was looked at. It could be that it was going to be typical of the many others. So I think that you did need to get into a lake but I don't think it would have mattered which lake at that stage and I think there is this international rivalry to be the first to do it. But I think there are enough lakes which will be totally unlooked at and which almost certainly don't intercommunicate with all the others. Even if you get into one, you are not destroying a complete environment. It's not as if you are going into a huge, something that interconnects right through the Antarctic.

[Part 1 1:09:14] Lee: So it was like a sacrificial lake? If this one were to become contaminated, it's in the interests of science to press on?

Paren: I have to say that the idea of these lakes, of drilling into them, has been current for ten, fifteen years or so. Every drilling programme that has been looking at the lakes, has had to be passed by the Scientific Committee on Antarctic Research, and the risk assessment is hundreds of pages. The paperwork you need these days, that's another story. The paperwork you need to satisfy bureaucracy is out of all proportion in the Antarctic, and I am quite sure that the case was put for Lake Ellsworth as clearly as possible. It would not have been a trivial document, so it was accepted by the international community as a risk worth taking. I don't know that it was going to be sacrificial but they had to minimise all possible problems.

[Part 1 1:10:22] Lee: Would you expect there to be organisms down there?

Paren: Yes, I think some things can last for ever. Cockroaches perhaps? No some things last for ever but how different they would be from what there is elsewhere in the world, one doesn't know. But just think of it, the pressures. It's probably, is it there three thousand metres of ice. It could be so that is three hundred atmospheres, something living at 300 atmospheres in the total dark, under high pressure. Whatever lives there, you might say has got to be peculiarly adapted to survive there so I am not sure what it.

[Part 1 1:11:00] Lee: It's got to be unique, hasn't it?

Paren: Yes. I think the bottom line, though, was whether this was the decade to do it in. I sometimes feel that one can identify some interesting bit of science you say 'Look, it really would be worth doing it but why do we have to do it now? Why can't it be left twenty years?' I suppose there is no answer. I think an awful lot of damage has been done in archaeology, for example, last century by people just wholesaley looking into archaeological sites. It does remind you that you think things are better now but how much better might they be in fifty years time?

[Part 1 1:11:42] Lee: Do you think a lake will be breached at some point²?

Paren: Oh yes, I think it is inevitable, and let's face it, the cost is nothing compared to these probes going to distant moons which again are looking at the same thing: Is there life in Mars? Is there life on Saturn's moons? It's so much cheaper to do it here, and actually some of the techniques they are using now are the sort of things they have in mind for distant manned flight in the end.

[Part 1 1:12:19] [End of Part One]

Part Two

[Part 2 0:00:00] Lee: This is Julian Paren, interviewed by Chris Eldon Lee, on the 22nd of June 2013. Julian Paren, Part 2.

[Part 2 0:00:11] Lee: You briefly mentioned the impact the Falklands War had upon BAS. Were you actually in BAS HQ at that time?

Paren: Oh yes. I was working in BAS HQ and went to the Antarctic both the year before the Falklands War and the year after the Falklands War. So I was quite shocked by the changes in the Falkland Islands that the war caused. All the minefields, all the barbed wire, all the skull and crossbones signs.

[Part 2 0:00:42] Lee: In the Falklands?

Paren: In the Falklands, yes. Stanley was always a very quiet place. You just couldn't believe there would be a battle for Port Stanley. It was just inconceivable. Stanley, the Falkland Islands are more British than the British. Everyone there is equable sort of people. To me there was always a garrison there but it wasn't a serious posting. No-one was going to attack the Falkland Islands, so it really was a great surprise when it all happened.

[Part 2 0:01:18] Lee: Was there no premonition at BAS that something was up, in February, March '82?

Paren: Well it depends what you want to read. Now I think I know who caused the Falklands War. That's a person in BAS.

[Part 2 0:01:38] Lee: Go on.

Paren: The tension rose, as we all know, when the so-called scrap metal merchants went to South Georgia to essentially clear a whaling station of stuff which they were given permission to do, and they raised the Argentinian flag while they were clearing the scrap metal. Now if it hadn't been for a base commander at South Georgia who saw the Argentinian flag or indeed reported that an Argentinian flag was flying where the scrap metal merchants were doing their job ...

² Lake Vostok was drilled into by the Russians in 2012, but the water samples were contaminated by drilling fluid. (Source: *Wikipedia*)

[Part 2 0:02:18] Lee: This is Stuart ...?

Paren: I'm not sure who the base commander was³ I have to say, but if it had never been reported, I mean they were just flying their flag collecting their scrap metal in South Georgia. If it had never been reported or never got through diplomatic channels, maybe the whole thing would never have taken off, if you understand me. But it was that ... the first alert was this raising of an Argentinian flag on South Georgia. So that was the start of the war, the start of the tension. If it hadn't been reported, how might it have gone? I expect in the end the Falklands would have been invaded anyway but the tension was certainly heightened by this one report.

[Part 2 0:03:06] Lee: But you are not aware of any conversations inside BAS earlier that spring, that something was about to happen?

Paren: No. I think you may well know that one of the stories of the Falklands War concerns *HMS Endurance* which just a few weeks before the Falklands War had been in Buenos Aires as far as I know, not in Montevideo. It had actually been in Buenos Aires on like a courtesy visit like they made. And there was a reception on board *HMS Endurance* and after that *HMS Endurance* went off and did its normal thing, and the story is told there was a captain of a naval frigate that actually had *HMS Endurance* in its targets a little later on, and I think was given instructions that it should fire at it but decided not to because he had been so well entertained on board just a few weeks before. That's a story I have heard, so maybe *HMS Endurance's* goodwill visits to South America saved the ship. No I don't think there was any premonition that it was going to happen.

[Part 2 0:04:22] Lee: What was it like the weekend that the story broke? Was it April the 1st when the House was recalled and shortly afterwards I understand that some military personnel did descend upon BAS HQ?

Paren: Yes, I understand that the most valued document in the whole of BAS was the *Geology of the Falkland Islands*, an aerial survey by Mary Greenway who I happened to know very well at one stage. She was a BAS geologist and she had done a geology of the Falkland Islands purely from aerial photographs, and published it with all these aerial photographs of the Falkland Islands. Then the military descended. They wanted copies of this report and, lo and behold, they discovered that the Argentinian Antarctic Survey had got the report a few weeks earlier, or so I am told. But we mentioned Joe Farman earlier; Joe Farman was livid. He had an urgent call from the Ministry of Defence asking him what time sunrise sunset was in the Falkland Islands on a certain day, and I think he said 'It's the same as Scarborough.' Something like that. Or 'Look up Scarborough, it's six months different.' I forget what he said. The military started to ask BAS questions about the Falkland Islands which they should have known from their own resources really.

[Part 2 0:05:53] Lee: Were you actually at any time in a room with military personnel at BAS?

³ Steve Martin.

Paren: No. I was still just a glaciologist; in those days I was a glaciologist. No, the BBC were desperate for pictures of Stanley to put on the BBC News and, lo and behold, a colleague of mine had pictures of Port Stanley and they were used on the BBC News. It did seem that everyone was ... They had very little, both the military and the Beeb, on the Falkland Islands before this story broke, the war broke.

[Part 2 0:06:29] Lee: Even though they were ours?

Paren: Yes, yes.

[Part 2 0:06:31] Lee: When did it begin to become aware at BAS that financially for BAS the Falklands War was good news?

Paren: In fact we were told ... it was the day that the troops actually landed at San Carlos. It was that very day of the landings in the Falklands that Margaret Thatcher had in Downing Street a few people from BAS. The Director wasn't there as far as I know; it was the Deputy Director and at that meeting on the very day she said 'When the war is over, I am going to make sure that our presence in the South Atlantic is strengthened and that will mean that I will want an enhanced presence in the Antarctic.' So the decision that she made was then but you may know that it then took a number of years of argument between the Foreign Office, the Government's scientific research coffers (I forget which department that would be), and the Ministry of Defence, about who should pay for an enhanced Antarctic presence. And the Foreign Office has said no; the military said no. Then they both said 'No. If research is the way we are going to do it, it has to come from an increased science budget.' And they argued and argued and argued, so it wasn't until 1986, probably something like that, that the details were worked out, and that in the end meant an increased science vote, rather than ... Yes it essentially came from an increased science vote but we always understood that that money was then ring-fenced by insistence of the Foreign Office.

[Part 2 0:08:32] Lee: To BAS rather than to NERC?

Paren: Yes, to BAS rather than to NERC. Yes I think that is the whole point, is where the money is ring-fenced to. But you might say it has become a bit more blurred subsequently about whether it is money for Antarctic research, which can be financing any university department in the country to do Antarctic research, or to fund British Antarctic Survey research.

[Part 2 0:08:56] Lee: Did you notice any more resources in your work?

Paren: As always the science is the luxury. Science is the luxury. No the result of the Falklands War meant essentially a Dash-7 aircraft, it meant a runway in the Antarctic. I am pretty sure it meant a new ship.

[Part 2 0:09:21] Lee: The *James Clark Ross*?

Paren: The *James Clark Ross*. So the *James Clark Ross* was a state-of-the-art oceanographic research ship which could do oceanography both in the Arctic (it's ice-strengthened) and that really meant for NERC because BAS didn't operate in the

Arctic. So the idea was an Antarctic research vessel for the southern summer and for the Arctic for the northern summer. So that was one result. But the runway at Rothera, the Dash-7 aircraft and then upgrading of facilities in the Antarctic and also the new headquarters in Cambridge – our second new headquarters, as it were, bolted on to the first one which expanded that. So dramatically the Falklands War enhanced the infrastructure of BAS.

[Part 2 0:10:20] Lee: Was there more money for glacier physics, which was what you were doing?

Paren: In practice it is difficult to say just how the money was divvied up. I don't think we were ever short of money but if you actually looked at BAS before the expansion and after the expansion, you would say that the people who seemed to come out best were the marine biologists and the life scientists in general. And this in fact was because of again the other big important issue, the resources of the Southern Ocean, not quite the whales but the fish, the krill and the fact that the world was going to be short of food. So there was a lot of backing, again from the Foreign Office, for work on the sustainability of the Southern Oceans.

[Part 2 0:11:17] Paren: So I would have said the main beneficiaries were BAS being able to go into the international research arena with money and say 'We want to be a partner in the Greenland Ice Core Drilling Programme. We want to be a partner in a big European Ice Core Drilling Programme. We want to be a partner in Sustainability of the Southern Ocean.' And because there was enhanced funding for BAS, that could be done and we could make a significant contribution. So that is on the science side and yes, numbers of scientists crept up, and as it crept up, more and more of the ... BAS was more and more persuaded that the universities had to have a share in the Antarctic work. But the bottom line was yes, the resources, the infrastructure of BAS was greatly increased at a stroke and it took probably another five years for that all to be worked through. Then the National Audit Office said we didn't do it properly and then heads didn't roll but in the end the National Audit Office said we expanded too quickly, too fast, but anyway we did it.

[Part 2 0:12:36] Lee: You have met Mrs T and Denis?

Paren: Yes.

[Part 2 0:12:39] Lee: There was a secret visit to BAS after she retired, wasn't it?

Paren: Yes.

[Part 2 0:12:45] Lee: Tell me about that day. What do you remember of it?

Paren: I remember two things. You remember silly things actually.

[Part 2 0:12:54] Lee: That's all right.

Paren: We had a security man. On the Friday before her visit the security man was there and I said 'Look, I have got to tell you something. We are going to have a visitor tomorrow and it is rather top secret. We are having a visitor tomorrow and I don't

want to alarm you.’ So he said ‘Who is coming?’ ‘I can’t tell you, but you will recognise her.’ The only people who knew about it in BAS were the Director and the Deputy Director.

[Part 2 0:13:38] Lee: And you? Yes?

Paren: I think there would be four of us knew about it and I had to be the Joe Farman. This was the strange thing because she had to be briefed on current Antarctic science and I did that because they didn’t want Joe anywhere near, you see. You would have thought ‘Yes, bring in Joe. He is the one who discovered the ozone hole, or so the story goes.’ He didn’t really discover the hole in the ozone layer. That’s another story.

[Part 2 0:14:07] Lee: Who did?

Paren: Well, Jonathan Shanklin. One of the team of three – Joe was the boss. Brian Gardiner is the best scientist of them all and Jonathan Shanklin was the ...

[Part 2 0:14:24] Lee: Did the maths?

Paren: Did the maths, did the graphs, did everything and said ‘Look. That’s it.’ Then they all huddled and huddled and that was the discovery of the ozone hole.

[Part 2 0:14:31] Lee: OK but it was his team?

Paren: It was his team.

[Part 2 0:14:34] Lee: But he and his pipe were to be kept away from Margaret Hilda?

Paren: Yes that’s right. So she came and I got some display boards up. You might say it was not as professional as it would be today with all the modern display material, but I talked to her about the ozone hole.

[Part 2 0:14:51] Lee: Was this a thank you visit?

Paren: Yes, I would say it was a thank you visit. I think she had always wanted to come, and yes, I think that is a very good word for it: a thank you visit. It was totally informal. She stayed two and a half hours I think and it was showing her display boards, showing her the BAS audio-visual which in fact I wrote anyway (so I was involved in that). And eating tea and biscuits and we got really decent biscuits but I think she just had the tea. I can’t tell you what she actually said but I think she wanted to know that it had all been worthwhile, and she did say that the work we were doing, as far as she was concerned, was high in the national interest.

[Part 2 0:15:52] Lee: No press?

Paren: Oh good heavens, no. No press. One black and white photograph, taken of her beside the model of the *James Clark Ross*, because the *James Clark Ross* had been built by then? No it may not have been.

[Part 2 0:16:09] Lee: No, it wasn’t finished.

Paren: No, it wasn't finished, so we had the model of the ship and so she and Denis with the Director and Deputy Director posed each side of the model of the *James Clark Ross*, and that is the only picture we have got. I had a copy of the thank you letter. She wrote a very nice thank you letter. I had a Xerox of it but I think it is one of these things I didn't keep very much longer. I think I have thrown it away, but she wrote a very nice letter and it was charming. I admired her for it.

[Part 2 0:16:45] Lee: We'll go back to the Antarctic itself in a while but as we are now actually talking about Cambridge and your changing role there, at what point did you become more Cambridge orientated? And more management orientated rather than science orientated?

Paren: Well I think the answer is that some people are good scientists and some are not quite so good as others. Charles Swinbank retired. He was the Head of Glaciology, Head of Earth Sciences and a new lady came in. That was again political. We didn't have a lady Division Head.

[Part 2 0:17:26] Lee: This was Liz Morris?

Paren: Yes. So Liz came in and I think by that time we were very much numbers limited. We couldn't expand any more; we had reached our ceiling and there were actually some very good scientists coming through and I really mean that; really good people coming through. And they would have to leave because there was no space for them, unless someone changed their job. I recognised that and I will say I have left now ... I left ten years ago and those people who came at that stage are still with the Survey and are still doing highly value work. So I could appreciate from both Liz's viewpoint and the Director's viewpoint, that the management of the Survey fell on just too few people and there were people who were going to lose a job unless someone could be moved sideways or whatever. So I guess I was moved sideways to become the Director's Assistant and I looked upon that very favourably actually. I thought that was a nice thing to do and there were some very good Directors.

[Part 2 0:18:43] Lee: Name them.

Paren: David Drewry, Barry Heywood and for a short time we had Dougal Goodman. And then we had Chris Rapley who really wanted to do things his way and he changed things.

[Part 2 0:18:58] Lee: You refer to Chris Rapley's reign as a shake-up.

Paren: Well of course it was a shake-up.

[Part 2 0:19:04] Lee: Is that a euphemism?

Paren: OK. You have people are, who you might say, brought up within BAS and David Drewry – OK he came from Scott Polar, so he was definitely an Antarctic person. He came from Scott Polar but definitely had the ethos of BAS in his heart.

[Part 2 0:19:27] Lee: He also understood about glaciology too because he was flying those radar flights. wasn't he?

Paren: Absolutely. Chris Rapley of course was indeed an Antarctic specialist in aerial survey – sorry, remote sensing from satellites.

[Part 2 0:19:46] Lee: Yet, when he joined BAS he had never actually been to the Antarctic?

Paren: No.

[Part 2 0:19:50] Lee: Did that matter?

Paren: Well yes, I think it did. To go at the stage he went is very unrealistic. Whenever a Director goes, if they have never been before you are going to see things differently, from doing it, from you might say, youth upwards. But no, he came and I thought when I heard he was going to be the guy, that was going to be good news. But NERC had their own idea of how the Survey was going to be. It was going to become more university orientated and less introverted (in a funny way). And I am absolutely convinced he would have been given performance pay the more he could get more of the BAS budget orientated towards the universities and more distinct from the real BAS budget. That is my guess, but he came and ostensibly to make BAS more efficient, proficient, better value for money, all the things which sound very business-like. And yes, he saw the need for doing things differently. I won't say I was his problem. He did have some problems with some staff, what to do with them, so he had to reorganise things and in that reorganisation, I went across and became, on paper, Head of something in Archives.

[Part 2 0:21:35] Lee: Environment and Information Division? Head of Library and Archives?

Paren: Yes, I became Head of Information and Archives, something like that. [REDACTED]

[Part 2 0:22:04] Lee: Let's talk about the pre Rapley seasons then, under the other Directors. What were you doing as Assistant Director? Were you literally shadowing them?

Paren: Most of the time I was concerned with the official documentation which left BAS for NERC, the Foreign Office, or whatever. I sort of edited everything. I wrote things. I edited other people's work. I was mainly a wordsmith, I suppose you might say. I dealt with the Parliamentary Questions. I dealt with quite a few things from the Press. Yes, I dealt with the Press.

[Part 2 0:22:58] Lee: So a kind of a secretariat?

Paren: Yes. After I left, I think they changed his name. That role was needed. OK, the Director had his own secretarial ... The Director, Deputy Director had their own secretaries.

[Part 2 0:23:20] Lee: I was thinking a secretariat though, where ...

Paren: Yes, that's right, because essentially the Directorate (as it was called) was the Director, Deputy Director, Head of Administration and me. Yes it was really four of us, but I was very much the lesser role. I wasn't paid as much.

[Part 2 0:23:48] Lee: Were those happy years at BAS for you?

Paren: They were until Chris Rapley came, yes, I would say. There were certain things I didn't enjoy doing. I alluded to one of them there which concerned grievances of female staff.

[Part 2 0:23:59] Lee: What were those, because by that time women were going South, weren't they?

Paren: Yes. No-one actually knew what the grievances were. I don't think anything exciting really came out of it.

[Part 2 0:24:14] Lee: We are not talking about Jimmy Saville stuff here, are we?

Paren: No no no. I don't think anything exciting came out of it. But I think NERC told us. OK, you wanted to know what my role was. I was very much the interface between NERC and the Director. NERC might phone me up or get me to then talk to other folk. It was a bit of an odd position and the NERC Polar Strategy is one of these things. NERC insisted that there had to be a Polar Strategy and the NERC Polar Strategy essentially was to ensure that universities had more of a look into Antarctic research. But NERC had to write the Polar Strategy and they employed some really old retired person and probably very distinguished person as it so happens and I had to be the BAS side of it. It's not nice trying to agree words with an organisation that really wants to slim down what you do. No-one in BAS wanted a NERC strategy; no-one in BAS wanted an Antarctic strategy. BAS was happy but NERC had to have a Polar Strategy. I suppose there was quite a lot of anxiety about it and I totally felt whatever I wanted to say, NERC weren't going to have it. So that wasn't a very happy part of the time, but David Drewry and Barry Haywood jointly, I felt they were extremely good friends, as well as being Directors or Deputy Director, and indeed Dougal Goodman. Have you met Dougal Goodman?

[Part 2 0:26:10] Lee: No.

Paren: [REDACTED]
[REDACTED] And Dougal I have known for years. He is hard-working, conscientious but he hadn't been to the Antarctic either. But anyway there were some happy times. But the worst time was trying to provide papers to NERC on the female staff and do you know, I really have forgotten whether they had any decent grievances, but in the end I booted it, I have to say. I talked to about twelve female staff. I did it on a one-to-one basis. I talked to them and I wrote

up the notes and I tried to summarise it all and then the report was made public and then about twenty of them said 'Oh you never talked to me. I could would have told him this. I could would have told him that.' There was a public meeting with all the female staff in BAS and I just tried to hide in a corner.

[Part 2 0:27:17] Lee: Was the problem what we now would call a glass ceiling problem? With the exception of Liz Morris, that women were not getting to the top jobs? In fact Liz didn't survive under Chris Rapley either.

Paren: No, she didn't.

[Part 2 0:27:30] Lee: So was that the problem? It was a glass ceiling problem?

Paren: [Pause] Yes, I would say it really was. There were some very competent ladies but they had minor roles. They were the workforce in a way. Do you know what I mean? They were and they had the shortest term contracts I guess. I find it strange that most of the ice cores cut up in the BAS cold rooms were cut up by ladies. Some of them weren't very well insulated either. No, some things you enjoy doing but everybody at BAS was so privileged. You might say I can say that because I did have a very privileged time at BAS. It was a privilege working for the organisation, going to the Antarctic and anything that detracted from that should only have been a detraction. It should not have been, in my view, so important. But I think it was NERC again who insisted that we went through this exercise, so I don't think it was self-inflicted.

[Part 2 0:28:52] Lee: Once you had been shaken by Chris Rapley, did you enjoy those last few years or was there a sense of decline in your role at BAS at that point?

Paren: Well I suppose I had only two years to go, I think, then.

[Part 2 0:29:11] Lee: So you were batting out for the end of play?

Paren: Well the thing which I really wanted to do which I had been involved in so many times before, well not so many times before, ... Have you ever seen the BAS audio-visual?

[Part 2 0:29:23] Lee: I think I must have done at some point. That was you, wasn't it?

Paren: I did two of them. There always was one which existed and I adapted it to bring it up to the current levels. And then, under Chris Rapley, he wanted another one which was shorter and more succinct and I did that and that I was pleased with and in fact he was pleased with it. And because he was so critical at earlier drafts of it, in the end when he really did say he liked it, I felt that I had done a decent job. And I won't say I went out in glory (I didn't) but I felt that I had done that job well and of course it has been changed since then. Now it's all film. The BAS audio visual had bits of moving image in it but mainly it was commentary to slide dissolve and it last 21 minutes and I was told that it had to last no more than 20 but in the end it lasted 21. And I do think in doing that, it made me really focus about what was important in the Survey.

[Part 2 0:30:47] Paren: So that was the last thing I did, the last major thing other than my routine things. I did the BAS Annual Report. My last five years I suppose, I essentially wrote the BAS website. I don't think I put that there. The BAS website was an idea. I was just like a template and it had to be written and to start with, I was head of the committee, the web committee, that dished out how this thing should be written. But very few people wanted to do it so we got the skeleton for it and in the end, the first edition of the website, which I think ran to over a hundred pages, at that stage I wrote well over half of it. To get the best BAS website off the ground was between my job as being Director's Assistant and in my last years in the Environment and Information Division. That was it.

[Part 2 0:31:58] Lee: You were becoming more and more involved in the external image of BAS and you were quite closely involved in the commissioning of Peter Maxwell Davies to write his Antarctic Symphony? I have met him. I have actually, ironically, help to re-roof Bunnatoon in the '70s (his croft on the Orkneys).

Paren: OK. This one on Hoy?

[Part 2 0:32:20] Lee: On Hoy, yes.

Paren: Oh really?

[Part 2 0:32:22] Lee: Yes, and then about four or five years ago, there was a performance of the Antarctic Symphony on the South Bank, and I went to hear it.

Paren: OK.

[Part 2 0:32:27] Lee: That's my connection, so I am really interested so tell me about how that happened.

Paren: Well, I have forgotten the guy's name now. The idea wasn't mine. We employed a new Head of Information. [REDACTED]
[REDACTED] I am sorry about that, but he said 'Why don't you have an Antarctic piece of music to celebrate 50 years since *Sinfonia Antartica* by Vaughan Williams?' Now Vaughan Williams' *Sinfonia Antartica* was 1947.

[Part 2 0:33:05] Lee: Yes. He never went of course.

Paren: He never went. And this guy said (and I'm sorry I haven't got his name) 'What you want is something 50 years on, not to feature on the adventurous side, getting to the South Pole, flag-waving.'

[Part 2 0:33:27] Lee: Not the heroics?

Paren: 'You want something to reflect science in the Antarctic.' And that was thought 'That's interesting. Wonder what it would cost. Can you get grants for it?' So in the end this guy, who was made to leave, and it wasn't anything to do with me, he had sown the seeds of the idea and had in fact rung round the agents and found that Peter Maxwell Davies was very very environmental. Now you may know that his most famous piece of music (that's an understatement of mine) is called *Farewell to*

Stromness. It's a lovely piano piece which he plays beautifully but that was part of something called the *Cakewalk Review* which was some music he put together to try and persuade people not to uranium mining in Orkney. Therefore he did seem to have some good green credentials and his name became uppermost. And so he came to BAS with his agent, who he has fallen out with subsequently, and they came to BAS for a day. I entertained them at BAS. Barry Heywood was the Director. We went through it all and in the end we did a deal that for a far reduced commissioning fee (which still cost some money), we would take Peter Maxwell Davies and his agent called Jane Arnold to the Antarctic. And so I took them to the Antarctic. So the idea wasn't mine.

[Part 2 0:35:11] Lee: You took them? They went in?

Paren: I took them, yes. I took them. I was in charge of them. I was their chaperone.

[Part 2 0:35:17] Lee: With Linda Capper?

Paren: Well of course Linda gets all the credit for these things. Linda was South at the time with a photographer who is called Pete Bucktrout who you may have met.

[Part 2 0:35:29] Lee: He is still there, yes.

Paren: Yes, Pete is still there. And their job was to try and stay in the background and let Peter Maxwell Davies get on with his thing with me guiding him. But you see by the time Linda, who ... Linda and Peter together thought this was the greatest story on Earth and they would hardly leave him alone. So it was a bit more of a camel train than it might have been, if you understand me, but we went for a month and he went camping although he was given a GA. He went camping and in the end we very nicely packed him off to Fossil Bluff which you have probably heard of, with another GA and he actually spent his quietest time, you might say, in Fossil Bluff, without the media, without me, without Linda Capper, without photographers, for a couple of weeks. Bute was away for a month and I looked after him really.

[Part 2 0:36:32] Lee: Did he have manuscript paper and quill pen with him?

Paren: He had manuscript paper, of course, but like all people working to pressure, he was trying to finish something else as you can imagine but he listened very carefully. He thoroughly enjoyed certain aspects of his trip to the Antarctic which was mainly being away from the main base. He didn't like Rothera. He didn't really like Rothera because it was too noisy and he did keep on saying that he had got the germ of ideas from various places we went to. Now he wrote a very fine diary. I don't know if you have ever seen his diary but in my view his diary of the Antarctic is even better than his Antarctic symphony. He wrote a very detailed diary and the English is superb. His powers of observation are wonderful. He does have a few critical remarks about BAS but generally speaking, he is very very thankful for that month away.

[Part 2 0:37:44] Lee: Linda Capper in her report in January 1998 says that she was baffled by the lack of communication and incomplete information [REDACTED] at Rothera and this led to some tensions.

[Part 2 0:42:38] Lee: Was it, in retrospect, a good idea?

Paren: Yes, I think it was a good idea. [Pause] Was it a good idea?

[Part 2 0:42:53] Lee: Well did BAS benefit from it?

Paren: Well of course we did at the time. There is an Antarctic Symphony today which I guess hasn't been played more than 20 times. But it does get played from time to time. NERC, in their lovely wisdom, after it was all commissioned, then demanded an explanation of why it was commissioned, on whose authority it was commissioned, and whether it was the right use of the public purse. And I had to draft all that for the Director to sign and I think he might have changed a bit. That was when Barry Heywood was Director. But in the end NERC did accept that it was fine.

[Part 2 0:43:42] Lee: Good PR?

Paren: It was good PR but you just wonder. I am sure Barry checked these things as he went along but afterwards it was a bit of a shock to be asked if it was the right way to spend public money.

[Part 2 0:43:55] Lee: Was that NERC stirring it?

Paren: I don't know if they were stirring. I think they just wanted to have a piece of paper which that felt that ...

[Part 2 0:44:05] Lee: Covering their backs?

Paren: I think it was. I don't think there was anything too vicious there.

[Part 2 0:44:10] Lee: You talked about his green credentials. How about yours? Clearly you have a strong philosophy about all that. I think you were a founding member of the Cambridge Green Party?

Paren: Yes.

[Part 2 0:44:25] Lee: Stood for the town council as a Green candidate?

Paren: Yes, yes.

[Part 2 0:44:27] Lee: I stood for Cheltenham in the Ecology Party, another connection. How about BAS's green credentials?

Paren: Well I think you have to look at what BAS is trying to do, and then say 'Is it worth the fuel spent on it?' I think BAS is trying to work out how climate changes over the long term and how much is natural and how much the CO₂ emissions can be laid as the actual blame for what may happen in the future. So I think you can have quite a high carbon footprint if your objectives are laudable. I think the objectives are entirely laudable on sustainability of Southern Ocean food stocks and on the climate story – entirely laudable. The footprint of course is extremely high. We send ships from the UK but here is no way round doing it. I think the fuel bill for both the

aircraft and the ships is a highly significant part of the BAS budget. The problem BAS has at the moment is the higher the fuel becomes, the less money from a ring-fenced budget you have got to spend on science and there can come a time when all you can do is run ships and there is nothing to do at the other end. BAS is trying to increase renewable energy in the Antarctic to try to get away from diesel generation of electricity and diesel generation of heat. How far they have got along the line I am not sure but that is their current intention.

[Part 2 0:46:10] Paren: BAS has an extremely good ..., the Antarctic as a whole has an extremely good policy on recycling and getting rid of all the things you take to the Antarctic. You have to do an inventory of everything that goes in and everything that comes out for the Antarctic Treaty and you are not allowed to do various things in the Antarctic. You are not allowed to do open burning. You have to process grey waters and things like that. Internationally the Antarctic is far cleaner than any other place on Earth. The restrictions on what you do in the Antarctic exceed, by a long chalk anything we do round the coasts of Britain. So the Antarctic is green as green as green and BAS is at the forefront of ensuring that what it does conforms to these standards.

[Part 2 0:47:01] Lee: But it is also suffering the backlash of all our other activities on this planet, isn't it?

Paren: Indeed. The Antarctic is where you can observe global pollution. People sometimes say, as you have probably heard, 'All these tourists going to the Antarctic, aren't they going to ruin the environment? Tourism and this pristine wilderness, they are in conflict, aren't they?' What is in conflict in the Antarctic is not the few people who go there or the scientists who go there; it's everybody else in their motor cars and heating their homes, which is inevitable. They have to do it and yet the impact that has on the Antarctic far exceeds anything 30,000 footfalls do a year. So the Antarctic is the greenest place on Earth.

[Part 2 0:47:50] Lee: Yes but in your notes you talk about the fragility, you realise in the polar regions you 'truly understood the fragility of Planet Earth and how what is happening in the Antarctic is exposing what I see as the follies of mankind in heading for economic growth without admitting the consequences on the sustainability of the environment of our planet.'

Paren: Yes, I think the climate record from ice cores is so conclusive on the power of the greenhouse gases in dictating the equilibrium (everything in ice cores is always equilibrium). The equilibrium climate that you see in ice cores, given the 800,000 year record we have, is so conclusive that CO₂ is the predominant reason for warmth or coolness of the planet; that the current rate of CO₂ growth that we have, the current rate of growth, which is a thousand times faster than has ever occurred naturally that we know of, and we are now at levels unseen for probably 40 million years. We are just asking for disaster and therefore I think if more people understood just how, if we stop where we are today and even just have the CO₂ we have got today, comparably we are looking 40 million years ago and then there were no ice sheets in the Antarctic. The sea level was 200 feet higher and yet that is the natural thing that should happen given time, even if we don't pollute this world any more. And yet it is so long term that people just are ignoring it, but I don't think future generations want us to ignore it. I think they want us to find some way of having economic growth without

destroying the atmosphere, CO₂ levels, methane levels, and whatever, that is sustainable for life on our current Earth.

[Part 2 0:49:55] Lee: Do you think that Mankind is capable of stopping its own folly?

Paren: At the moment, no. At the moment any wriggle that can be wriggled is wriggled. There was a chance through the Kyoto Convention to put a cap on these things, and even two weeks ago the Energy Bill went through or the Amendment to the Energy Bill failed to go through Parliament, the energy bill that would have put a target for 2020 or 2030 emissions on the UK which was proposed by Tim Yeo and a Labour Member together failed to get through by only thirty votes. But the present philosophy which as we understand emanates from the Treasury is economic growth is what you have to go for and that will cure all the ills in the end and if the way of having economic growth is to ensure that there is a totally free market in electricity and power production, that should be the cheapest option, that is the thing to go for, rather than to artificially put limits on how much CO₂ the country should produce in the future.

[Part 2 0:51:07] Lee: OK. How did the introduction of the Dash-7, the air link from Rothera to the Falklands and back, how did that change? That was Thatcher's money. How did that change the beast that we know as BAS?

Paren: More VIPs go to the Antarctic because they could dash in and dash out [Lee chuckles at the pun]. No the Dash-7 changed things completely.

[Part 2 0:51:34] Lee: This is Chris Rapley's creation isn't it?

Paren: No, the Dash-7 was long before. This was promoted in the 1970s and arrived presumably ... Sorry, start again. The Falklands War was 1982. It was a proposal brought forward in about 1986. I guess it came about 1990, the Dash-7 or even later than that. The Dash-7 is simple. You have a taxi service going each way to the Antarctic on a weekly/ two-weekly basis depending on how many passengers you have. Perhaps every two weeks going backwards and forwards and by doing that, people who have a limited length of field season can fly in at the start of it, do their work and fly out and obviously leave the rest of the accommodation at Rothera to people coming before or after them. In principle that is good, and it does mean theoretically that you can have a short field season. Before then you had to go in in November, you might say, and come out in March. Even if you had not so much work to do, there was hardly a way of getting back halfway through the season; you were very much stuck there. And therefore if you are stuck there, and your work has finished, you contribute to the life of the base and that is the important thing, to keep the base ticking over. With the Dash-7, on paper, you could leave the UK one day and literally be in the Antarctic within 24 hours, and some people did actually manage that. But the Dash-7 requires good weather at both Rothera and another station, a second station.

[Part 2 0:53:25] Lee: A backup destination you mean?

Paren: A backup destination, so you need good weather at two places before the plane flies and it's a five hour plane journey. And going that way is actually quite difficult

to get good weather at two places at once but that is what you need. So although you can get there in five and a half hours, sometimes it took ten days because people were waiting for the good weather, and the ship can do it in five days at the most, or less than that: four or five days.

[Part 2 0:53:54] Paren: So you did have the irony of people spending longer trying to get there by air than they did by ship. But because the plane only takes 15 people, you can get people in and out right through the season. So that is the preferred way to get people in and out really because you can tailor the flight to just when they want to do the work and they can come back afterwards. So for many that is a good thing to do and it means, especially for VIPs or university folk or perhaps university lecturers, they are not going to theoretically get caught in the Antarctic for months on end, so they can't back to do their teaching work. But they miss everything, don't they? They don't go down by sea from the Falklands. They don't see everything from ground level. They don't slowly acclimatise. You are just in and out, and because you are very much flying in and out, you are not hanging around the base and I use the word hanging around because there is always work to do, there are always jobs to be done. And if you are just in you are not sure whether you are flying today or tomorrow, you might just sit back and, dare I say it, read a book or something. If you knew you were going to be there a week or so, you would really get tackle down and do something.

[Part 2 0:55:17] Lee: It's also reduced the number of winterers, hasn't it?

Paren: Yes, but that is a different philosophy I think. The number of winterers has reduced. The number of bases which over-winter has reduced. For somewhere like Halley, which of course is the most inaccessible, the fact there is so much work now can be done in Cambridge using satellite information, or data relayed by some means or another from the Antarctic.

[Part 2 0:55:53] Lee: Remote sensor somewhere?

Paren: Yes. So much work which at one time required feet on the ground, now requires someone with a computer terminal and that can be anywhere, particularly in Cambridge or a university. The data is almost available for all.

[Part 2 0:56:08] Lee: It must be changing the nature of Fids. The modern day Fid must be a different beast to previous generations.

Paren: Yes. I was about the first year – we were talking about skidoos earlier on – I was one of the first years when skidoos really were the means of travel. Before that of course it was the dogs. It took them some time to get used to skidoos. But people now don't expect to spend long on their Antarctic station if they are doing field work, and they expect, lo and behold, the weather to always be good, to fly in, do their three weeks work and fly out and fly home again. But unless the weather has changed, that is unrealistic because you can never predict the weather and for me, even if you had to wait three weeks for a ship, it was much more dependable than an aircraft that was so weather dependent, particularly going south.

[Part 2 0:57:08] Lee: You I think made eight or ten visits to the Antarctic?

Paren: I don't know.

[Part 2 0:57:13] Lee: Somewhere between those two figures, but you never wintered.

Paren: No.

[Part 2 0:57:16] Lee: Do you feel deprived?

Paren: [Pause] No, I don't feel deprived. I know that the work I did was ... You are paid to work. The work I did could only be done in the summer. There is no question about it. To enjoy oneself, I would have enjoyed the travel. I would have enjoyed the Antarctic experience but I was probably going to be older than most, because I did not join BAS until I was 33. I enjoy adventure but I think the winter is just an adventure, for field people anyway and I didn't get that, but they used to get that a lot.

[Part 2 0:58:05] Lee: There were one or two other incidents that took place whilst you were down there. A scary incident when you were in the field late in March and you were trying to get back.

Paren: Yes.

[Part 2 0:58:17] Lee: Tell me about that. It sounds like it was almost a race to get back.

Paren: Well everyone knows, when you go to the Antarctic they will tell you the aircraft return on March 6th or something. It's written in their diaries: that the aircraft return on a certain date and when you go into the field, you certainly know that if an aircraft is not going to go back home on March 6th, the pilots aren't going to be very happy anyway because that is when they expect to go home. And therefore as February turns to March, all the field parties are generally called in. They say 'Are you ready to come home?' And if you say you are ready to come back, they will try to get you at the earliest opportunity. One year we were ... It was Charity again, cold as charity, the weather was appalling. It just was bad and they even sent planes when it was totally unsuitable, when you are in whiteout and absolutely driving snow, they said 'The plane is coming to pick you up.' And it is March 4th or March 5th by then. 'The plane is coming to pick you up.' There is no way the plane is going to land. 'Oh you have got good weather where you are. We have seen it.' I don't know what imagery they had.

[Part 2 0:59:38] Lee: The radar?

Paren: Yes. 'You have got good weather.' 'No, we haven't.' 'Take the tent down.' 'We can't take the tent down; it's blowing.' It was actually just thick whiteout. So we decided not to and of course the plane never landed. But we weren't the only party out. There was another party which contained another gentleman who you probably haven't interviewed. But they were in fact after us, but it was well into March and they were almost crying. They really almost were crying. It was so cold. Autumn came in early. It was very cold and they were equally in a dire location where it was extremely windy. It was down to -35. Camping at -35 when you are trying to do fieldwork isn't really on. So it was just the worry because GAs always talk about the

contingency plan. And the contingency plan if the planes go home is that you go by skidoo and you go to here and there and you end up at Fossil Bluff for the winter. I think most GAs would love to spend the winter at Fossil Bluff. They are almost hoping that the plane was going to go home without you. But no, it is worrying. The nights do get pretty long; it does get cold and you know that when a plane comes to meet you, really they don't want to be there either.

[Part 2 1:01:19] Lee: So were you concerned at any time that you might end up literally abandoned in the field?

Paren: Yes. We actually had the wherewithal to skidoo a huge journey and end up at Fossil Bluff.

[Part 2 1:01:26] Lee: Right. Having missed the ship home?

Paren: Yes, oh yes. It is not just missing the aircraft, it's missing the ship as well because without the aircraft ... And people have been stuck in the Antarctic over winter when they didn't mean to be.

[Part 2 1:01:38] Lee: Oh yes.

Paren: Even in fairly recent years.

[Part 2 1:01:40] Lee: I have got a couple more quick questions about drilling again, if I may. This is from David Peel. We may have already covered this and I apologise if I am repeating ground. 'BAS's first efforts at ice coring at Gomez in 1981 using a borrowed drill.' Does that mean there?

Paren: That was the one which I ...

[Part 2 1:02:02] Lee: Which you lost?

Paren: I lost, yes.

[Part 2 1:02:04] Lee: OK right.

Paren: Yes, sorry I did call it Bullihole. I didn't actually call it ... That was at Gomez, yes.

[Part 2 1:02:10] Lee: And again: 'the developed the first hot water drill at BAS'. You designed it in BAS yourself?

Paren: Yes yes. There was a company of water engineers near Oxford and when we approached them, they thought this sounded interesting. They made pumps, heat pumps but that was, I think it was well worth doing and if it hadn't been for that, I don't think we would have had the expertise to go to Lake Ellsworth.

[Part 2 1:02:36] Lee: Did you receive a glass ball at some point?

Paren: Yes.

[Part 2 1:02:39] Lee: Where did that come from? This is a presentation after 25 years at BAS? Do you know how that originated?

Paren: Yes, I do.

[Part 2 1:02:47] Lee: Go on then.

Paren: Well one of the Directors, I don't know which one it was ... David Drewry, maybe it was David Drewry – I think it was after that – thought that anyone who had been in BAS for 25 years, there ought to be some sort of presentation. 'Julian, will you sort it out? Will you do something about it?' [Sighs] Was I excited by this? Not really. Anyway I talked around, made some enquiries and got in touch in the end with Caithness Glass who did actually make these things in Caithness. It is a glass sphere. Have you ever seen one?

[Part 2 1:03:35] Lee: No, I never have.

Paren: It's a glass sphere which has like air holes in it. Presumably they are air holes. So it is a glass sphere with lots of bubbles in it.

[Part 2 1:03:44] Lee: Like an Aero?

Paren: Yes, but in it they encapsulated a map of the Antarctic which you could say looked like a bit of wafer, white wafer but it was cut to the shape of the Antarctic. That's in the middle. And then it had a flat bit somewhere and it was engraved with the recipient's name. So you can say you can blame me for those because I was told to do it. I did it yes.

[Part 2 1:04:12] Lee: You designed it?

Paren: Yes, essentially, yes. We had a hundred made and I think when they first brought them out, there were about 15 of us had done their 25 years service, so there was a bit of a celebration. Midsummer's Day in Cambridge, yes, they had a presentation of the first fifteen. But, yes; I am afraid I am responsible for those.

[Part 2 1:04:36] Lee: So there is a cupboard somewhere at Cambridge with several dozen of these things?

Paren: Unengraved and they have probably been forgotten about.

[Part 2 1:04:46] Lee: Waiting to be presented?

Paren: Probably nobody wants them, no.

[Part 2 1:04:49] Lee: Let me finish on a poetic note. There is a lovely story about seeing the Moon rise in a strange formation. Tell me about that, Julian.

Paren: Well again this was Charity. It is the most unusual thing I have ever seen. Charity is mighty cold and there are cold hills, at quite steep angles that you can see.

And one night, I went out of the tent for some reason. The Moon rose and you expect the Moon to rise – it would have been a full moon just – to rise above, but these are mirages and the Antarctic is famous for its abnormal refractions. As the Moon rose, so it just became more and more elongated, so it was like a vertical lens shape, and suddenly, as it went up, a little plop arrived at the bottom, totally distinct, very round. The bottom of an exclamation mark. A few seconds and then it joined up with the other one. As it rose more, the Moon became circular. It was just close to a mountain ridge which was at an angle to the horizon. So it was the light, the fact that that mountain ridge was a different temperature from the air adjacent to it, bent the light.

[Part 2 1:06:18] Lee: An inversion? Refraction?

Paren: It was a refraction. All mirages are refractions but it was caused by a very sloping steep mountain angle on the horizon. So this thing arising, it was the light that coming from the Moon somehow got bent by the change of temperature caused by that hill. And it really was, for a time, an exclamation mark and then it just became the Moon, and rose and I just couldn't believe it. It was mighty cold, it was dark. No it was quite something. I have never seen anything like it, ever, but no camera.

[Part 2 1:07:06] Lee: It's here in the memory, isn't it?

Paren: Yes, it was one of those things that you never forget. I didn't know Nature could do that. Quite amazing.

[Part 2 1:07:16] Lee: It has been a fascinating two and a quarter hours, Julian. Thank you so much.

Paren: Oh dear.

[Part 2 1:07:23] [End of Part Two]

ENDS

Possible extracts:

- [Part 1 0:14:16] A secret basement in the USA
- [Part 1 0:23:59] Skidoo controversy
- [Part 1 0:27:24] Whisky arrives in sample bottles
- [Part 1 0:28:49] Bad weather at Christmas
- [Part 1 0:33:44] A scary experience
- [Part 1 0:38:25] A gorgeous evening on Reptile Ridge
- [Part 1 0:39:38] Silent penny whistle
- [Part 1 0:41:58] Losing an ice drill
- [Part 1 0:55:48] Differences between ice core and hot water drilling
- [Part 1 0:57:01] Failure of the Lake Ellsworth project
- [Part 1 1:02:13] BAS versus NERC
- [Part 2 0:00:11] The Falklands War
- [Part 2 0:04:22] Geological Survey of the Falklands in demand
- [Part 2 0:11:17] More money for ice core drilling after the war
- [Part 2 0:12:39] Mrs Thatcher's secret visit to BAS
- [Part 2 0:19:27] Changes under Chris Rapley's directorship
- [Part 2 0:26:10] Dealing with female staff grievances
- [Part 2 0:29:23] The BAS audio-visual
- [Part 2 0:32:27] The Antarctic Symphony by Peter Maxwell Davies
- [Part 2 0:51:07] How the Dash-7 changed things
- [Part 2 0:58:17] End of season anxiety
- [Part 2 1:02:36] The glass ball
- [Part 2 1:04:49] An unusual moonrise