

## JOHN BROTHERHOOD

Edited transcript of a recording of John Brotherhood interviewed by Chris Eldon Lee on 15th – 17th January 2013. BAS Archives AD6/24/1202. Transcribed by Andy Smith, 18th July 2013.

[Part 1 0:00:00] Lee: This is John Brotherhood, interviewed by Chris Eldon Lee via Skype on the 15<sup>th</sup>, 16<sup>th</sup> and 17<sup>th</sup> of January 2013. John Brotherhood, Part One.

Brotherhood: My name is John Roland Brotherhood. I was born in Manby, Lincolnshire, on the 5<sup>th</sup> of April 1940.

[Part 1 0:00:25] Lee: Would you say your father was an educated man?

Brotherhood: Yes, he was indeed. He was a scholar to Monmouth School and he was on the second intake at the Cranwell Royal Air Force College. That would have been in the early 1930s.

[Part 1 0:00:45] Lee: What was it that made you have an interest in medicine?

Brotherhood: I always had it. I don't know. I think some of us, that was just what we were going to do. I was always interested in biological things. I don't think I ever had any strong vocational desire to go and heal people, particularly; I just ... medicine was of interest to me.

[Part 1 0:01:20] Lee: What do you think was your first awareness that there might be a place on this planet called the Antarctic?

Brotherhood: Ah, a good question. I can think of two things that got my interest in the Antarctic. One was reading a book when I was probably about 10, I suspect: Arthur Ransome's book, I think called *A Winter Journey*.

[Part 1 0:01:44] Lee: *Winter Holiday*. I have just read it.

Brotherhood: Yes so that was very much ... So I think that started ... and then I was given a book of Ponting's photographs. I think it was called *With Scott to the Antarctic*<sup>1</sup> or something. It was a popular book in the '50s. I was given that book and I think that probably bought those two things together and, rather like medicine, I just felt I would always want to go to the Antarctic. Then I became interested in how people survived; how was it that humans survived in the Antarctic. So that became of interest to me.

[Part 1 0:02:32] Lee: So which came first: the desire to go to the Antarctic or the desire to do research which meant you had to go to the Antarctic?

Brotherhood: Oh it was going to the Antarctic. Having decided I would go to the Antarctic what I wanted to know was how it was that humans survived or got on in the Antarctic, if you like in a biological sense, physiological sense. Yes in the

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<sup>1</sup> *The Great White South* by Herbert Ponting.

physiological sense rather than the psychological sense if you like. Then, with regards to going on to doing the research, I then went and discussed these interests with the medical ... with Otto Edholm who was the head of the Medical Research Council<sup>2</sup> at the time. We came up with a research project. I applied to FIDS, I guess as a medical officer and then it was after that that the research project was determined.

[Part 1 0:03:26] Lee: What was your interview like? Can you remember much of it?

Brotherhood: With Bill Sloman?

[Part 1 0:03:32] Lee: Yes.

Brotherhood: Just a general chat – that’s what Bill did. You had a chat; if he liked the cut of your jib, you were in. I guess it wasn’t perhaps all that easy to get doctors. I don’t remember it being particularly frightening. I think Fuchs might have come in at some stage as well, but I am not certain about that. I can’t remember that. But anyway it was just basically a chat with Bill Sloman, and I don’t remember it being particularly difficult to sell myself.

[Part 1 0:04:03] Lee: Were you sent for a medical?

Brotherhood: Yes.

[Part 1 0:04:07] Lee: What do you recall of that?

Brotherhood: That I was told that I had had pneumonia at some stage, which I wasn’t aware of, but thinking back, I realised the occasion. Do you want a side story?

[Part 1 0:04:20] Lee: Yes please, yes.

Brotherhood: Getting back to this whole business of why did I go to the Antarctic, when I was a boy, round about ten to my very early teens, my father had lived in, or his home was in Tintern in Wye Valley, and we used to go there for holidays. Across the road there was another boy who was a little older than me. I think he was a couple of years older than me, and we used to spend all our time in the woods and down by the river and we made a map of the River Wye. We knew all the fishing holes and that sort of thing. So he was a very adventurous chap and I think that is really what got me going on the Antarctic. What was the question again? I have lost track. This side thing?

[Part 1 0:05:20] Lee: I was asking about the pneumonia.

Brotherhood: Oh the pneumonia? That’s right. So we lost contact until I had actually graduated and was a doctor and I was invited to their house for a New Year’s Eve party. I went to the house and I had a couple of beers and I began to feel extremely unwell and I was very concerned that this chap’s family would think that I was just getting terribly drunk. I was basically unconscious for a day or two and had a very

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<sup>2</sup> He was actually head of the MRC’s Division of Human Physiology.

high temperature and I think that was probably the time when I had pneumonia. We just thought it was the flu' or something.

[Part 1 0:06:06] Lee: So it sounds like the medical was quite thorough?

Brotherhood: Yes it was. We had chest X-rays, the usual sort of urine test and that sort of thing, but we didn't have ECGs or ... It was the same sort of thing as an insurance medical.

[Part 1 0:06:23] Lee: Yes. Did you have much time between being recruited and sailing South.

Brotherhood: My recollection is that I would have applied at the beginning of 1965 when I was still doing a house job up in Chertsey, I was doing a casualty job in Chertsey (St Peter's Chertsey). I had finished that job, which I think finished in July. So in terms of preparing for my research, I had from really the end of July, I think, to November which was when I sailed. So I had about four months to prepare my research and in fact I should have gone South on the *Biscoe* which left ... I think it usually used to leave about October some time. But because I was taking time to prepare my research, I actually went down on the *Kista*.

[Part 1 0:07:25] Lee: Did anybody from BAS vet your research programme or check it over or advise you on it, or did they just say 'Yes. That is OK.'?

Brotherhood: All the medical officers who have decided to do medical research, did it under the auspices of the Medical Research Council, and Professor Otto Edholm who was head of the Medical Research Council at Holly Hill in Hampstead so I think as far as BAS were concerned, if Otto agreed with the project .... In fact he very often ... They had a whole series of projects they wanted doing in the Antarctic. Then BAS were quite happy. They probably had an arrangement with the Medical Research Council that they would organise medical research.

[Part 1 0:08:11] Lee: How about gathering all the equipment you needed? Was that straightforward or was that complicated?

Brotherhood: No, that was difficult and the reason was that I wanted to measure energy expenditure, and measuring energy expenditure entails measuring oxygen consumption which meant that I had to have a gadget that measured the volume of air that people breathed but also took samples of their expired air (the air they breathed out) so I could analyse it for carbon dioxide and oxygen. From that I could measure the amount of oxygen people consumed during their daily activities. And I wanted to do this, of course, at very low temperatures and there wasn't really any equipment at the time that did that satisfactorily. So I designed my own equipment and built a prototype which would work at low temperatures and in fact Mike Burgin, whom you have already interviewed, he was taken on as my assistant. He was extremely good technically and he actually built this equipment. He put the equipment together, as far as we could.

[Part 1 0:09:30] Brotherhood: However I needed a particular component that was the actual counter that counted the amount of air that was passing through the equipment

and that wasn't finally delivered ... It was an absolutely critical piece of equipment and it wasn't finally delivered until the day the ship sailed at Southampton. So astonishing; you would think no wonder British industry was in a parlous state. If that piece of absolutely vital equipment hadn't arrived, my whole research project would have been pranged, as there was no way it could be got down to the Falkland Islands in time. It couldn't be flown in those days; there wasn't flying in and out. So a bit of a ...

[Part 1 0:10:31] Lee: Were you having to chivvy them up, shall we say, to get it on time?

Brotherhood: Yes, absolutely. The Medical Research Council, the man who was Stores Manager, he was on their back all the time. So eventually I was too. I seem to recall telephoning somebody on the Sunday before I went down to Southampton to get the boat.

[Part 1 0:11:01] Lee: Mike Burgin seems to suggest that some of the equipment was ex-Greenland, it had been used in the Arctic.

Brotherhood: I used another piece of equipment which had been developed, measuring energy expenditure in the British Army, developed by the Medical Research Council. Yes, that might have been used in Greenland before and it would have been used also for research with the Army.

[Part 1 0:11:34] Lee: But he suggests that it was fairly cantankerous, this stuff, and he was having to take two or three pieces of equipment together to get one that would work, cannibalising the equipment.

Brotherhood: Yes, I think that might have been the case too, yes, because perhaps it hadn't been used for a few years. And we did what was called 'winterising' it, so it was cleaned, all the grease was taken off, and it was actually lubricated with graphite, which of course operates at very low temperatures (and high temperatures). Any grease would have just gone gummy.

[Part 1 0:12:10] Lee: And was it bulky and difficult to manage?

Brotherhood: Quite bulky. It was a knapsack: the Portable Integrating Motor Pneumotachograph (known as the PIMP) was a fairly heavy, rugged piece of equipment. That was what had been used for the Army, and it was worn in a knapsack and you wore it with a mask on your face. Another reason for designing ... You had to wear a mask because the flow meter was actually on the mask. The other reason for my designing my own equipment was so that I could use it with a mouthpiece, because most Fids are a bit like you: they have got beards, and so facemasks wouldn't have been any good because they would have leaked. So the piece of equipment that I designed was much lighter. It was fairly bulky. It had a volume of 9 litres, which ?? [inaudible] but it was quite light. It was quite ingenious really because we covered it in foam plastic which insulated it. Because the expired air passed through the equipment, it actually kept it fairly warm, so freezing wasn't such a problem.

[Part 1 0:13:33] Lee: What were you actually hoping to establish when you set off South? What was your Grand Plan? What were the results you were after?

Brotherhood: Well I wanted to measure the energy cost of living in the Antarctic, which meant measuring the energy cost of all the outdoor activities, or as many of the outdoor activities as I could, and also a timed-activity study so I did daily diaries, which sometimes I did by direct observation and other times I got the Fids to actually keep a daily diary of all their activities. So every time they changed an activity, they recorded the time. The other thing I did was to measure all their fluid intake, with the ultimate goal of getting what we call an energy balance study. Prior to my going to the Antarctic, a number of people had measured food intake and found, perhaps not surprisingly, that people ate a lot more food, ate a lot of energy, and that suggested of course that the energy cost of living in the Antarctic was pretty high. Then the other question was why was energy expenditure high in the Antarctic. So that was another part of the research, to try to determine why energy expenditure is high in the Antarctic.

[Part 1 0:15:02] Lee: Was this pure research, or was there going to be an application afterwards.

Brotherhood: That was pure research, just fundamental research: what is the energy cost of the Antarctic, and what really is determining energy expenditure in the Antarctic?

[Part 1 0:15:21] Lee: Tell me about the journey South, John. What was it like?

Brotherhood: That was terrific. I enjoyed that. The *Kista* – I can't remember how big the *Kista* was, but it wasn't very big. I had a 16mm camera with me and I took some film of a rather rough part of the voyage and sent it back to Kodak to be developed. They said that when they looked at the film, they were all sick. But basically we had a very pleasant voyage down through the Atlantic. I might say that when we set out from Southampton, we went west down the Solent past the Needles. It was fairly rough down there; the Channel was fairly rough, so I thought I had better be a good doctor and wandered around with a very large jar of seasick pills, and every now and then I used to have to leave my patients rather rapidly and depart to the rail.

[Part 1 0:16:31] Brotherhood: But we all got over the seasickness. We got our sea-legs after about 48 hours. We had a nice voyage and then we also saw things like flying fish which I had never seen before. We would wake up in the morning and there would be flying fish all over the deck. They rigged up a swimming pool which you have heard about no doubt, so we had a pool which was rather fun. Phosphorescence which I had never seen before, in the bows: the sea absolutely glowing, reflecting the stars really. One fascinating thing, really quite extraordinary, was round about it must have been the end of November, we'd had our evening meal. It was still light; in fact it was sort of dawn. Not dawn, dusk time, a bit before dusk. I just went up on deck and I happened to look up and I saw two tiny little silver dots coming together, and do you know, that was Gemini-6. Do you remember the early space programme?

[Part 1 0:17:43] Lee: Oh yes yes, I remember.

Brotherhood: I think it was the first or second time that they had actually docked to the ...

[Part 1 0:17:55] Lee: The two spacecraft were docking together?

Brotherhood: Yes, the capsule ... and I just happened to step out on deck at the time that was happening.

[Part 1 0:18:04] Lee: Was that with the naked eye, or were you using binoculars or ...?

Brotherhood: Yes, you could see it. You have probably seen satellites. It was just the right time of the day: the sun was just setting, and so there were these two little silver dots.

[Part 1 0:18:19] Lee: Were you actually looking for it? Were you stepping on deck because ...? No?

Brotherhood: No, I just happened to look up and there they were. Extraordinary! Quite extraordinary! The rest of the voyage, we had the usual Crossing the Line ceremony, which wasn't too brutal if I recall. I can't remember who was King Neptune and who was his queen; pretty ugly both of them. Then the next thing of course was going into Stanley. We went into Stanley in the evening. I think it was just so atmospheric, you wouldn't believe it. It was absolutely still. As you go in through the Heads, into Stanley, to the north there's a place called Sparrow Cove where the *Great Britain* was in those days. You could see her there and I think there was another hulk there as well, and as we went in there was just not so much an inversion but the smoke from the fires was just paralleling. There was this wonderful smell of peat smoke: very evocative, very very atmospheric. Anyway so we docked there and as you know we went to the Falkland Islands Store and bought goodies, cameras and so on which were all very cheap. I bought a Nikon for 5 quid I think, and we got kitted out at the BAS store. But that entry into the Falkland Islands ... When I came back from the Antarctic I did a locum job in the Falkland Islands later on.

[Part 1 0:20:10] Lee: What are your memories of the hospital there? Did you visit the hospital?

Brotherhood: No I didn't. I visited the doctor, Slessor, a courtesy visit, but I don't recall going to the hospital.

[Part 1 0:20:24] Lee: And then South. Was that on the same ship or did you transfer?

Brotherhood: No I went on the *Kista*. The *Kista* went into Signy and unloaded me and a lot of equipment. I suppose Mike Burgin was with me as well. I forget whether he was on the *Kista* or not. Anyway the *Kista* went into Signy and as I say, some stores were unloaded, my stores, my medical stores in fact were unloaded. They hadn't had a doctor on Signy before so they had a fairly basic medical kit. On bases where there were medical officers, there was medical officer's kit as well, so that went ashore.

[Part 1 0:21:17] Lee: What were your first impressions, having wanted to go to the Antarctic all your life? Did it match up to your expectations?

Brotherhood: You can imagine there was a certain amount of trepidation, but basically I seem to remember thinking it was pretty good. As much as anything meeting a lot of new people who I was going to live with for a time, and that's always a bit .... And I was going to be base commander as well, or base leader I think they were called in those days, as well as doctor so that aspect of things was a bit ...

[Part 1 0:22:01] Lee: Responsible? You felt responsibility?

Brotherhood: I suppose so, yes. But more how were we going to get on, I suppose.

[Part 1 0:22:15] Lee: How come you were appointed base leader in your first season?

Brotherhood: I don't know. They just asked me if I would do it. I suppose they felt there wasn't anyone ... I suppose I was the worst of a bad lot perhaps.

[Part 1 0:22:27] Lee: How was it, because you were arriving at a base where half the people had been there for a year already, and assuming command? So how was that?

Brotherhood: Well the base leader I was taking over from, a chap called Mike Northover (I think he has actually died), he was pretty good. We had long discussions. I seem to remember walking around the base a little bit, and walking round the island just having discussions about running the base. I didn't particularly find taking command ... The other thing of course was what we used to call 'summer charlies' so there were people who were just there for summer work and there were one or two people who had already spent a year there – not very many of them. Most of us were first-year people I think, if I recall. I think Inigo Everson had done a year there, Nigel Bacon the cook I think. I think they were about the only ... Most of us were new actually. I am just trying to think of the other people. There were others who had already wintered there, but they were going to go out. They were going back North.

[Part 1 0:24:03] Lee: Did they brief you about ...? Apart from talking to the existing base commander, did BAS give you any particular training or briefing about how to run a base before you left home?

Brotherhood: No, not that I recall, no. You know it really was quite interesting. In many ways we were just chucked in the deep end. They must have had the most ... Yes, very interesting. There was a manual, which I seem to remember said, amongst other things, that 'conversations involving women, politics and religion should be avoided'.

[Part 1 0:24:46] Lee: That was written down somewhere?

Brotherhood: Yes, that's right. It must have been taken straight out of an officers' mess stuff. It was just sort of ...

[Part 1 0:22:00] Lee: Did you mindfully adopt a certain approach? For example at one extreme you might have been very much a committee man or a cabinet man, or you could have been a dictatorial type of leader. Did you choose a particular style?

Brotherhood: I don't think I particularly chose any style. I certainly don't remember being a commander. There were things that had to be done, to run the base. I organised rosters like gash and that sort of thing. I suppose my main concerns were safety. That was more difficult because we were quite a small base. They were all biologists who needed to go out; they had to work in the field. It wasn't as though they were sitting operating instruments. So there were times when that got a bit tricky, just making sure one had enough people around, with an accident or something we had enough people around to deal with it.

[Part 1 0:26:19] Lee: I guess the problem was balancing Health & Safety against people's needs and desires to get on with the job?

Brotherhood: That's right, and also people's needs to get on with the job but the non-scientists also needed to have recreational ... They needed to be able to get out as well, and there were times when I think they were a little frustrated because maybe I had all the biologists out in the field and I said 'No we have got to have two or three of us here in case there is a problem.' and that used to cause a bit of friction. But as far as possible, if a biologist was going out, I would try and send one of the other guys with them.

[Part 1 0:27:03] Lee: Do you remember a particularly difficult decision or a particularly difficult day, when you were challenged in your ...?

Brotherhood: Yes, there was one day in the spring when nearly all the biologists were out and one chap particularly wanted to go and look for plankton in the pack ice, which meant taking a boat out, and that was a day when I felt that things were a little bit stretched and I had to be pretty firm. Three or four of us had to be back on base and be prepared to get people out.

[Part 1 0:27:53] Lee: Who were the characters in that year at Signy? Who do you recall particularly?

Brotherhood: Oh they were all characters really. I suppose Inigo Everson, who you have probably met, he was first class; he was an excellent chap. He was a marine biologist; a very good man. Likely to be a joker but absolutely first class when it came to doing stuff that needed to be done. Nigel Bacon was our cook. He was doing his second year I think. He was 19 when he went down. A remarkably responsible job, being cook, because he looked after the stores and that sort of thing. He again, he was absolutely first class. He looked after catering absolutely perfectly. There were never any problems with stores. He was a very good cook, imaginative cook, and what's more he took on the seal tagging programme in the spring, his last spring. He assisted the biologists the previous year and he took on the seal tagging and did it extremely well. It was a routine job but it had to be done methodically and he did that very well.

[Part 1 0:29:19] Brotherhood: The radio operator Steve O'Shanohun, who I guess was an Irish cockney. He was a bundle of fun. Again a very young fellow: 19. Done a



marine wireless ops course somewhere, (what were those?) Tech College I think, but again a first class man. They were all good but those were the three people I really remember, but they were all first class in their different ways.

[Part 1 0:30:04] Lee: Did you find yourself becoming involved in the biological, animal biology that was going on?

Brotherhood: Yes, probably too much.

[Part 1 0:30:13] Lee: How do you mean?

Brotherhood: Well I was fascinated you know. As I am sure you understand, medicine gives you a very broad education in biological techniques, so I was actually familiar with pretty well everything that was going on: the microbiology, cutting sections of ... for microscopy. I had done all this so I was really very interested in what was going on. And from time to time I used to go into the labs, partly just to see that people were able to get on with their work, were happy in their work and weren't getting any problems. But I was also interested and I think sometimes people thought I was snooping too much. I wasn't really snooping; I was really just very very interested in what they were doing. And of course we did get involved in discussion.

Part 1 0:31:07] Lee: Discussion about what?

Brotherhood: What they were doing. 'So why are you doing it that way?', really for my own information rather than actually checking that they were doing it right. But sometimes I thought that I was being misunderstood.

[Part 1 0:31:29] Lee: Did you do any diving?

Brotherhood: No, I didn't do any diving myself, but Inigo Everson and Martin White – they were the two marine biologists – they dived under the ice and it was the first time that BAS had done any diving. So again, there we were doing this pioneering work, with absolutely nothing in the way of follow-up in those days. 'Just do it.' Obviously we started with caution and care and so on. But that was quite an adventurous thing to do.

[Part 1 0:32:10] Lee: Yes. Did you ever do any doctoring? Were your doctor skills called upon?

Brotherhood: Yes.

[Part 1 0:32:20] Lee: What can you tell me?

Brotherhood: Well I think actually you asked me what it was like when I went ashore, the first time I went ashore. Well I had only been ashore ... I think I had just had some lunch and Ron Lloyd who was on the *Kista* going down to Halley Bay came ashore and said 'Oh one of the stewards has got appendicitis. I think we should do an appendicectomy.' I thought 'This is not something to be taken too lightly.' So I went onto the ship and rather agreed that it did seem likely that this chap had got appendicitis and what were we to do? The captain wasn't very keen that he should be

on the ship because if it blew up, that was going to be difficult for them. Likewise I wasn't too happy so he could stay with me and be treated conservatively but if that didn't work I was going to be there on my own.

[Part 1 0:33:28] Brotherhood: Since we had two doctors, we thought if you have got appendicitis, the best thing to do, or the definitive treatment is to get the thing out. So we did this and that was done in the main biology lab. The whole place was stripped out and scrubbed and cleaned and we did this surgery. Ron Lloyd who I think had been a junior registrar. He had done quite a lot of surgery. He did the operation and I administered the anaesthetic, which was quite interesting. I used ether and what was called a Schimmelbusch mask which was basically a metal mask like a clip, like two pieces of coconut and you just put gauze in this wire mask thing and dropped ether on it. I had done anaesthetics. One does a short amount of anaesthetics as a student but of course with conventional anaesthetic equipment. So this was rather new.

[Part 1 0:34:47] Brotherhood: We barely had enough equipment. I think we only had one pair of surgical gloves and John Baker, who had done some medical ... had worked as a medical technician when a student, as a vac job, he assisted in the surgery. He had these amazing leather gloves that were used probably for cleaning seals or something, big long leather gloves like gardening gloves. So that went ahead, fortunately without a hitch. Giving the anaesthetic was very interesting. You could get extraordinary control. From time to time Ron would say 'He's a bit tight.' which meant the muscles of his abdomen were a bit tight and he was having difficulty getting access to the appendix. So I put a bit more ether on and immediately the muscles would relax. So that was what you call a steep learning curve. The chap recovered. He stayed on Signy and recovered and he was picked up by ship later.

[Part 1 0:36:05] Lee: Have you ever done an appendix operation since?

Brotherhood: No. Well you see I actually stopped clinical medicine not long after leaving the Antarctic, but as you probably know, Ron Lloyd ... Well we did a number of appendicectomies in Halley Bay. There was twenty of us on that occasion. There was a doctor who had actually worked as an anaesthetist, there was Ron Lloyd who had been a surgeon and there was me. So together we had a first class medical team. That was at Halley Bay.

[Part 1 0:36:50] Lee: What was it like living at Signy? What sort of facilities did you have? There was a 'plastic palace' wasn't there?

Brotherhood: Yes, fibre-glass. It was extremely comfortable; really very nice indeed. The bunkrooms were shared. I think there might have been four bunks but for our wintering party there were one or two people in each bunkroom. As base leader I had my own room which was also my office. But very comfortable bunkrooms. Yes, it was reasonably warm. I don't remember being cold indoors at any time. Plenty of electricity. Yes, it was very comfortable. As I said, a very good cook. Excellent laboratory facilities; we had very good labs. Three good laboratories and a marine ... what was called a wet lab where the fish and the marine stuff was done. Yes, very good but two rather fundamental things. One was water and the other was the bog.

[Part 1 0:38:16] Brotherhood: We will talk about the water first, if it's of interest to you. In the autumn there was a time when everything froze ... In the summer we got our water from melt water that ran down the back slope into a big water tank, so we had running water. But then in the autumn the running water would freeze before it snowed and so we had no snow to cut for ice blocks which were then melted. So we had this period of about a week or ten days when we actually had no water available on base. Luckily there was some pack ice around on the sea and we were able to find little bits of glacier ice which we chopped up and used for water. But for a time then it was quite an interesting period of time. Going to the other end of the proceedings, the bog was an outside latrine, just a wooden hut, a one-holer, which from time to time would get drifted up so you couldn't get in. I remember on one occasion watching a chap going to the window and looking out of the window at regular intervals and wondering what it was he was looking at. Later on I realised that what he was waiting for was somebody to dig the bog out so he could go.

[Part 1 0:39:52] Lee: Was the person who dug the bog out normally the base commander in fact?

Brotherhood: Not at all, no. It was the chap whose need was the greatest.

[Part 1 0:40:03] Lee: One of my spies tells me that you often were out there first thing in the morning, digging the toilet out.

Brotherhood: I don't recall that. That was either somebody pulling my leg or being very kind. No, I don't recall that.

[Part 1 0:40:19] Lee: You don't remember an occasion where you dug the toilet out and before you could nip in yourself, Everson got there before you?

Brotherhood: Oh that would be right. Well that's Inigo. [laughs] Yes, that certainly could be right but I don't remember the occasion.

[Part 1 0:40:37] Lee: It was quite a noisy building, the plastic palace, wasn't it? You had to be careful with doors. You had to be careful with your footsteps and with doors.

Brotherhood: I don't remember that being particularly a problem. Dunno. Can't remember.

[Part 1 0:41:01] Lee: You were never kept awake with slamming doors?

Brotherhood: No, I don't remember that.

[Part 1 0:41:14] Lee: OK. I forgot to ask you about dentistry. I think either you were involved in or you were the recipient of some dentistry at Signy.

Brotherhood: Yes, I think the only dentistry at Signy was on myself. Actually Chris, this brings us to three things with regard to the last ship, the departure of the last ship, which might be of interest to you. I will just get my notes. [sound of rustling paper] On the last ship, which was the *John Biscoe*, which left at the end of March if I recall,

there was a dentist. I'd had trouble with a tooth and I had had it looked at in London, and they had said they couldn't see anything. That might have been because people before dental X-rays ...

[Part 1 0:42:14] Brotherhood: Anyway I'd had this slight nagging tooth and it had continued and I asked the dentist on the *Biscoe* to have a look at it. He had a pretty good look and he said he couldn't detect anything. He did various tests and seemed to think that all was OK. Anyway so the last ship sailed off and a couple of weeks, maybe a month later, this tooth really blew up. I got quite severe toothache and it was not really going away. I think I probably took some antibiotics. I can't remember that particular detail but anyway I just came to the conclusion that it wasn't going to recover. I can't remember how John Baker came up but I must have asked for volunteers to extract this. Maybe I felt that John was a competent sort of chap and so I asked him to take this tooth out, which he duly did. I can't remember what I used. I think I probably took a lot of codeine which is an analgesic.

[Part 1 0:43:34] Lee: Scotch?

Brotherhood: Yes, I can't remember that. Maybe that too. It wasn't all that bad. I recovered and ... I obviously recovered but having got the tooth out, it was quite clear that it wasn't a good tooth at all. The bottom of it was absolutely rotten. Now the next story, about the last ship, was we had in the radio shack two old ex-Army transmitters. So there was a spare transmitter and Steve O'Shanohun the radio operator had determined that the standby or the spare transmitter wasn't working properly which was a bit of a worry. In fact it had an intermittent fault. It would go and then it would just cut out. So he got the radio operator from the *John Biscoe* to come and have a look and they had a look at it. He couldn't work out what was wrong with it at all: it was a typical intermittent fault.

[Part 1 0:44:46] Brotherhood: Anyway, to cut a long story short, after the ship had gone, Steve was ... when I was in the shack discussing this thing with him and he said 'This bloody thing doesn't work properly' and he gave it a kick. There was this little tinkling sound. We opened the cabinet and at the bottom was an 8BA nut and this nut had just got caught somewhere, and after that it worked perfectly. You asked me what I thought about being at Signy. My birthday was April the 5<sup>th</sup>, about ten days after the last ship had gone, and I remember walking up to a place called the Bluff on my birthday, just on my own, going up and looking out and seeing that the pack ice was coming in and that we were really actually going to be surrounded. This was going to be the winter isolation and that was it. I remember thinking 'Well, that is it. We have started. I just hope things are going to be OK.'

[Part 1 0:46:07] Lee: When and how did you broach to the other guys the subject of being your guinea pigs?

Brotherhood: If I recall, I would have had a sort of general chat, probably after a meal one evening or something like that, and told them about my project and what I was trying to do. Telling them obviously it was very important that they be subjects and so on. By and large people were pretty cooperative but some people didn't particular like wearing the apparatus. I suppose they felt that it interfered with them which it might have done a little bit but not really particularly. One or two people really objected to

it. One chap I remember really objected to it because he thought it was work. I wanted to measure him when he was skiing. He said 'No, this is recreation. That's work. I am not going to be involved in that.' So it wasn't actually always easy.

[Part 1 0:47:14] Lee: Let's pick up. We were talking about Signy and you had one or two more thoughts since we last spoke on Skype.

Brotherhood: Just going back to the various aspects of ... various things that happened within a few days of the last ship leaving us. The other thing that I forgot to mention was one of the boys developed renal colic. This is extremely uncomfortable pain down the side when the stone pass from the kidney down the ureters into the bladder. It is very uncomfortable and unusual in a young man Normally one would have to investigate that in a hospital, not so much as a matter of urgency, but one would certainly want to know why a young man was getting that sort of pain. Anyway clearly there wasn't much I could do about that except treat the discomfort, because the ship had gone.

[Part 1 0:48:13] Brotherhood: So that was potentially a bit of a worry but I was able to examine his urine and he had uric acid crystals in his urine and I think the reason for that was that when the ships came in we got fresh meat in the shape of, usually, a sheep's carcass from the Falkland Islands. But of course at Signy we couldn't preserve those because we didn't have cold conditions and we didn't have very much fridge space. So we had to more or less eat these beasts as quickly as we could and I think this particular individual had really enjoyed a lot of mutton. Maybe that was why he had this rather concentrated urine. Anyway fortunately he had no further symptoms but interestingly, some time after he returned to the United Kingdom he had a repeat and he did in fact have an abnormal kidney.

[Part 1 0:49:10] Lee: Were you taking urine samples on a regular basis, from all the men?

Brotherhood: No I wasn't. But since you ask a question about urine, my successor, Richard Hillier, who was another doctor who came onto Signy after me and think he was also base leader, his research project was looking into what we call cold diuresis. You are probably aware of the phenomenon that when we go out in the cold, very often we find we want to pee more frequently. So the question for Richard was: whether there was any evidence of adaptation. Whether for a standard cold stress, people peed less after living for a year in the Antarctic. Anyway, as I said previously, my research project involved the collection of expired air and sometimes I used large plastic bags to collect this expired air, and Richard of course was collecting urine. Not long after I left Signy I had a telegram from Steve O'Shanohun who was our radio operator, saying 'You doctors are nothing but a load of wind and piss.' So that was fairly typical of the sort of humour that went on.

[Part 1 0:50:33] Lee: One or two of your colleagues accuse you of taking the piss. I presume they were talking metaphorically, were they?

Brotherhood: Oh yes I think so, probably, yes.

[Part 1 0:50:42] Lee: Was there a good sense of humour on base at Signy?

Brotherhood: Yes, there was, excellent, yes. I think Inigo is a natural comedian really, and an even more natural comedian was Steve O'Shanohun, who as I say was an Irish cockney. He was full of amusing anecdotes. If anybody had the slightest disagreement he would say 'You want bovver?' Yes there was quite a lot of reasonable humour I think.

[Part 1 0:51:22] Lee: How was punctuality on base, John?

Brotherhood: Ah, that's a loaded question, isn't it?

[Part 1 0:51:30] Lee: It is.

Brotherhood: Yes well, by and large pretty good. I am not the best ... I never have been very good at getting up in the morning, but I wasn't too bad. Most guys got up pretty early in the morning. Punctuality generally ... There was one chappie who really got up at 4 o'clock in the afternoon if I recall, and he was a total night-bird, and he went to bed when we got up.

[Part 1 0:51:59] Lee: So let's go back now to these tests that you were conducting on your colleagues. They tell me you made them do step tests outdoors whilst this was going on.

Brotherhood: Well yes. One of the questions of course was what might increase energy expenditure in the Antarctic. So the idea was to do a standard test or standard exercise, which was stepping on and off a box, and to do that outside and to do that inside in the warm, and see if there were any differences between doing this standard exercise outside in the cold or doing it inside in the warm. That proved actually more difficult than I had expected because the big plastic bags I used for collecting air became very brittle in the cold and they broke. So sometimes I would have a nice full bag of air and then I picked it up and the thing would just split open. So I abandoned doing it outside in the cold but I continued doing these tests in the warm because the tests can also be used for measuring physical fitness, so I was interested to see whether physical fitness changed during the year. There was some evidence of that. People were a little less fit at the end of the winter but got fitter again as the days got longer and people spent longer outside.

[Part 1 0:53:29] Lee: Did it also vary depending upon the kind of job they were doing, so was the cook less fit than the GAs?

Brotherhood: Yes there was some evidence of that. In fact the person whose fitness changed the most, who increased the most was actually Ron Smith, because he did a lot of cross country skiing as part of his work, and so when he got back to work sampling mosses I think, his fitness improved considerably, by about 15% if I recall, which is quite a big increase. The others were smaller changes. I wasn't able to measure everybody, partly because it didn't fit in with their other duties and also perhaps because they didn't want to be involved. To get back to your question, were there a difference between the GAs and the more sedentary people, I don't know the answer to that.

[Part 1 0:54:34] Lee: You were doing all this on one of the longest and coldest winters on record at Signy. Did that add to the problem?

Brotherhood: No I don't think so, no. I hadn't realised that. I guess at that stage we just accepted the winter as it was. If it turns out that it was a long cold winter, I don't think we were particularly aware of that at the time. I certainly don't remember that as being a big and important factor.

[Part 1 0:55:01] Lee: Let's move on to other matters. You were trialling skidoos in 1966?

Brotherhood: Yes indeed.

[Part 1 0:55:07] Lee: How was all that?

Brotherhood: That's right. Skidoos or motorised toboggans (and I suppose the Skidoo was the best available at that time) hadn't been used by BAS at all, and they were sent to Signy. We had two, and Mike Burgin, he undertook the maintenance of these machines and as I recall kept very careful notes and was able to make a pretty good report I think on these skidoos at the end of the winter, before the end of the year. We actually used them a lot. We used them for recreational purposes of course, but also the biologists used them a lot for travelling in the winter across the sea ice and around the island. They were pretty good. They were reasonably reliable. They could be difficult to start, a bit like outboard motors were in those days, but once they were going they were pretty good.

[Part 1 0:56:08] Lee: How did you take to them personally?

Brotherhood: Well fine. I can't remember whether I drove them very much. I'm not sure that I did actually. I probably didn't have any particular need to but yes, they were quite easy to drive and they were fine.

[Part 1 0:56:28] Lee: Did you have feast days on base, when there was a public holiday? Did you mark the occasion?

Brotherhood: Oh yes. Public holidays ... Signy: my recollection Signy had an average of 13 hours sunshine a month, so it was overcast pretty well all the time, and so whenever we had a cloudless bright sunny day, that was always declared a national holiday. Basically that involved recreational activities. We would play soccer on the ice. On a couple of occasions we went across to Coronation Island and climbed about on Coronation. So sunny days were always celebrated. There was a good meal every Saturday night. We didn't have any other formal entertainment for Saturdays, unlike Halley Bay which had films on Saturday night. We more or less entertained ourselves. Birthdays of course, there were always celebrations there, and usually that involved a good meal and a birthday cake cooked by Nigel Bacon.

[Part 1 0:57:50] Lee: There are rumours of barbecues on sunny days.

Brotherhood: Yes, indeed, barbecues. Thank you for reminding me about that, and at Midwinter we had barbecues. We built barbecues on the ice and also we had rather

interesting firework displays. These were basically oil drums which had a certain amount of waste oil in them, and Ernie Thornley our diesel mech he used to solder the tops on or screw the tops on. Then these were heated up on fires. They exploded with great satisfaction but on one occasion we heard a lid going not very far above our heads, like a flying saucer. So potential danger there I suppose but quite good fun.

[Part 1 0:58:42] Lee: So all in all your first year as base commander at Signy, how would you summarise it? Looking back on it now, how did it go?

Brotherhood: Oh I think pretty satisfactorily. From what I can remember, occasionally during the winter, not so much getting depressed but rather wondering how I would cope with another winter. So that's personally. I think with regards to the base, morale was generally I think excellent. There were one or two hiccups with morale which was much to do with things like unexpected duties. The scientists were asked to undertake some of the meteorological programme, and we hadn't had much training for that, and that I think upset one or two people. But apart from that, I think it all went extremely well. We got on very well. Whether people disliked one each other or not, I don't know; it certainly didn't come to the fore at all. So I think by and large it was a happy year.

[Part 1 1:00:00] Lee: Did you have any techniques for countering the blue days, for coping with sadness or depression?

Brotherhood: Not really. There was one man there who was, I think, clearly depressed. I used to talk to him from time to time. But otherwise I think probably people were... Put it this way: they didn't come to me with problems like that. That might have been one of the problems of course with being base leader and medical officer. Probably not a good combination in fact.

[Part 1 1:00:40] Lee: Why do you say that? Confidentiality?

Brotherhood: Partly confidentiality and partly because the base leader is there to be the base leader and so on and the medical officer there is really the person for whom people should feel comfortable in going to confide in. I don't know whether people felt this but they might have felt that the base leader was not necessarily the person to go and talk to if they were troubled in any way. Certainly if people had anything physically wrong with them they came and spoke to me as the doctor, but I don't know about psychological things, whether there was any sort of inhibition there because there might have been some perception of ambiguity in the two roles.

[Part 1 1:01:37] Lee: Can you think of an example of that, when you were concerned about that (without necessarily naming a name)?

Brotherhood: No, no. Well as I say, there was one particular individual who didn't actually consult me, but I was aware of the fact that he was not very happy. I spoke to him from time to time or made it very clear that I was happy to talk to him, but he didn't really ... I think we discussed some of the things that were making him unhappy. That right, I recall that, and in fact part of that was because he had a dual role which he wasn't very happy with and I tried to deal with that.



[Part 1 1:02:17] Lee: OK. You signed up for two winters, hadn't you, at the very beginning of all this?

Brotherhood: Yes.

[Part 1 1:02:23] Lee: Did you know where your second winter was going to be?

Brotherhood: No, I didn't, and I didn't know where my first winter was. Now it was fairly unusual, if you like, for a doctor to sign on for two years, and the reason I did that was because of my research project. I thought 'It will take me a year to really learn about living in the Antarctic.' Then in my second year I could apply the knowledge gained in the previous year, focussing the research and also perhaps having refined my techniques and so on. So that's why I signed on for two years. I had rather hoped to go down the Peninsula so that I could get some sledging, because that was obviously a very important part of British Antarctic activities in those days. So when I was posted to Halley Bay and then told that we were going to build Halley Bay and that there would be very limited opportunities for sledging, that was quite a considerable disappointment to me.

[Part 1 1:03:32] Lee: So when did you hear that you were going to be posted to Halley Bay for the second season?

Brotherhood: I can't remember that but it would have been towards the end of that year in Signy. I can't remember exactly when it was.

[Part 1 1:03:47] Lee: Were you pleased with the news or were you disappointed?

Brotherhood: Well I didn't mind going to Halley Bay particularly because I knew that there was a sledging programme there. I'm not sure if I knew at that stage that there was going to be this big building programme, and furthermore, because we had a lot of people on base at Halley Bay at that time in 1967 (or whenever it was<sup>3</sup>), Ricky Chinn, very properly, didn't want me to be far from base at any time. So really my field activities were greatly reduced at Halley Bay. So that was a disappointment.

[Part 1 1:04:33] Lee: So you did no sledging at all?

Brotherhood: No, I did ten days sledging with Alan Johnston who was a surveyor and Ken Halliday who was one of our radio operators. Basically that trip was a trip for a ... a recreational trip for Ken and myself, but also I used that for doing some physiology as well.

[Part 1 1:04:57] Lee: Halley would have been much more of a building site than Signy, wouldn't it? A very different atmosphere.

Brotherhood: Oh yes. At that time we built the Halley Bay 3<sup>4</sup>. We built 9 new huts, big huts. Yes that was a very big busy building programme throughout the year. We got all the huts built before the winter set in, but then of course we spent the winter, or

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<sup>3</sup> It was 1967.

<sup>4</sup> Halley II in the modern numbering. Halley I comprised three phases: IGY hut (1956), main building (1961), new office block (1964).

at least the building team certainly spent the winter fitting out the huts. During that time some of us ..., before the accommodation was built at Halley Bay, at 'Grillage Village' (the new place), a number of us lived down in the old base, for ... probably almost until Midwinter, certainly 3 or 4 months, before the accommodation in the new base was available for us.

[Part 1 1:05:55] Lee: What kind of condition was the old base in?

Brotherhood: Oh that was interesting. An absolute appalling ... There were two bases there: there was the original IGY hut, which was 30 feet below the surface at that stage. The heat had been turned off to that hut and it had slowly been crushed. But the second base which I think was built about 1962 or something like that (I forget exactly). Some vital components, I think bolts or something had been left out of the building equipment and so it was basically falling apart. For example, when I first started sleeping there in the summer, I slept in a bunkroom where the ceiling of the bunkroom, which was basically the roof as well, was beginning to cave in, and I slept on the top bunk. After a few weeks I had to move out of the top bunk because the roof had come right down and I couldn't get into that bunk any more. So I slept in the bottom bunk for a bit, but the temperature in there was always below freezing. I think the warmest conditions were probably about -5/-10. And for those guys, for the static programme guys, the meteorologists and the physicists who were living down there, they lived on base the whole winter because that's where their equipment was. Those guys, they slept in temperatures every night about -20 Centigrade; really cold and miserable.

[Part 1 1:07:44] Lee: Was it worrying to be in a hut that was creaking and groaning and changing its shape?

Brotherhood: No, the main problem was that ... Well first of all, the old hut, the old IGY hut, that was being slowly crushed. You see it's not like a mine. The ice just slowly encroaches and crushes things and I had a temporary lab in the old hut, and every now and then there was an enormous crack, and the roof beams and the roof trusses would split just like a matchstick splitting. But there had been no movement at all. There was no risk of anything falling in or caving in. By contrast the newer base, where we were actually living, the temperature was a lot warmer than that and the main problem was that it leaked water. So not only was it pretty cold and chilly, but it was often very wet, and so we had sheets of plastic all over the place trying to keep some of the place dry. So it wasn't much fun at all.

[Part 1 1:08:50] Lee: What were your duties then as doctor? Were you helping to build these new huts or were you fully occupied medically?

Brotherhood: Well in the summer everybody, it was all hands on deck to build. So we were all involved and I was completely involved in building, erecting the new huts, constructing the new huts. And I spent a certain amount of time helping with the fitting out. Then I think the fitting out became a little bit more expert, if you like, and the building team were more or less concerned with that. I then started to do my research programme but also Big Al Smith built the surgery there and fitted out the surgery. When he had done that, I painted out the surgery and moved all the medical equipment into the surgery and so on. By that time I suppose it was getting on for a

little after Midwinter and I had to start planning the medical equipment for the field teams, putting that together, and that was when I started to write *Kurafid*.

[Part 1 1:10:15] Lee: Tell me about the genesis of *Kurafid*. Was it simply because there was nothing else to refer to?

Brotherhood: The sledging satchels had this *Factory First Aid Manual* and I think also a *Merchant Marine Ship's First Aid Manual*, and whilst these were quite useful, I was aware of the fact that they really were just first aid things and very much for lay people, and so in that regard were limited. So I decided that ... For example there was no real proper instruction on how to suture a wound, or how to manage a longer term fracture of a limb, that sort of thing. Or indeed if somebody had the bellyache. So those sort of general medical questions ..., so I wrote *Kurafid* to try and fill those gaps, and then of course, when I got back to the UK it was developed further.

[Part 1 1:11:22] Lee: So it was all hammered out on a typewriter in your surgery was it originally?

Brotherhood: Yes, absolutely, with two fingers! I am not a typist even today.

[Part 1 1:11:33] Lee: And it has just been republished?

Brotherhood: Oh yes, I think it's a very different beast to what it was, but nonetheless it kicked it off and indeed I understand it is actually used internationally now. I think a lot of other organisations apart from FIDS use it, and I think it might even be used for non-polar regions as well.

[Part 1 1:11:56] Lee: Dis you have many medical problems, because obviously on a building site there is more scope for accidents?

Brotherhood: No. We were extremely lucky. A couple of guys complained of piles. I told them not to sit on cold steel girders. Medical problems? We had no injuries or serious medical problems associated with the building. We were extremely lucky. The odd chippy got splinters and so on but I can't remember ... No I don't think there were any serious problems associated with the building. As you know there was another appendectomy, again at the time of the changeover. One of the gash hands who had been working as a general assistant, climbing on South Georgia, had developed appendicitis. In fact it was clear that he'd had a damaged appendix for some time, even when he was in South Georgia.

[Part 1 1:13:10] Lee: Was this 'Wee Georgie' McLeod?

Brotherhood: Yes indeed. In fact we were working shifts 24 hours on doing this building and I was going from the ship (where I was sleeping at the time) to the building site and I passed George McLeod and it just so happened that a caravan, which was a little caboose which was like a safety station between the ship and the new base. He hailed me and said 'I don't feel too good, Doc.' So I asked him a few questions and said 'Oh well, maybe you have eaten something that didn't agree with you.' and he went off back to base. The next thing I knew was that he had gone one step further and Ron Lloyd had seen him and again appendicitis was diagnosed. And

there was an Australian doctor there called Dick so obviously his name was ‘Dick Doc’, who I think had done a registrar’s job as an anaesthetist. We had sophisticated anaesthetic equipment at Halley Bay so that surgery was carried out in the surgery on the old base at Halley Bay, and George recovered.

[Part 1 1:14:26] Lee: What’s all this about the Midwinter pantomime that you took part in, which brought the subject of contraception into the lives of the Halley men?

Brotherhood: That was a lot of fun. What was going to be the science block had not been fitted out by Midwinter and so we had this empty hut and a group of us erected a stage – I think we even had curtains and so on – and we put on a little pantomime which was basically about the experience of a character called Fid who was obviously a pantomime based on a Fid’s experience. Fanny Hill (Dave Hill) was Fid I think. Peter Noble wrote a lot of rather good songs, played good songs, and ‘Old Sir Vivian had a Base’ was one of them. And a chap called Nick Mathys, who was a gash hand, told me some joke about contraception, so that sowed seeds.

[Part 1 1:15:46] Brotherhood: Once you started thinking about contraception, it didn’t take long to find any sort of hollow tubular rubber good that was around the base, upon which one could build quite an amusing skit, which is what I did. I had this little suitcase and we had things like gloves which were for people who enjoyed multiple partners. Finger stalls that were very small rubber things and it think they were for midgets; balloons with drawings on them which were funny puckers; inner tube tyres from sledgewheels (I forget what the punch line for that was). The final line (and I forget the punch line) was I dragged a rubber met balloon out of the suitcase and I had to walk twice round the stage to get the whole thing out, by which time there were serious cases of collapse in the audience.

[Part 1 1:16:44] [End of Part One]

[Part 2 0:00:00] Lee: This is John Brotherhood, interviewed by Chris Eldon Lee via Skype on the 15<sup>th</sup>, 16<sup>th</sup> and 17<sup>th</sup> of January 2013. John Brotherhood, Part Two.

[Part 2 0:00:15] Lee: Can we move on now to the events of November? You were out sledging with Jim Shirtcliffe.

Brotherhood: Yes.

[Part 2 0:00:26] Lee: Tell me what happened from your point of view.

Brotherhood: Jim and I had planned to do ... I wanted to do physiological measurements of people manhauling sledges. It hadn’t been done before and that was one of the reasons I was there. Jim was willing to be a subject so we planned to do this manhauling sledge where we would go out to I think it was Mobster Creek if I recall. The plan was to go down onto the sea ice, have a look at the emperor penguins and then go from the sea ice back to Halley Bay and back up the chute there and back to base. That was a sort of a reasonable day’s trip. When the day for this expedition arrived it was overcast but the visibility was excellent. The visibility must have been at least 20 miles because you could actually see the Hinge Zone which was ... (this is where the continental ice comes down to the ice shelf).

[Part 2 0:01:36] Brotherhood: So it was very good visibility and I remember that as I pulled the sledge up the ramp, Fanny Hill was standing at the top of the ramp and he said to me 'You shouldn't be going out today, Doc, in whiteout.' I think I probably said to him 'Visibility is pretty good, Fanny.' Anyway Jim and I went off and we came to Mobster Creek. These creeks are splits in the edge of the ice shelf where the ice shelf meets the sea ice. It splits like when you are rolling out pastry, and the edge of the pastry splits. It splits in the same way, and depending on your orientation to the prevailing wind you get a big snowdrift up the side of the split. So you can actually get from the ice shelf down the drift into the bottom of the creek and out onto the ice shelf<sup>5</sup>, and that was what we were aiming to do. But of course what actually happened was that Jim said 'We have arrived at the drift now, Doc.' So he went in the front, to lead the way down the drift, and I was at the back of the sledge and we started to proceed down what we thought was the drift ramp down onto the ice onto the bottom of the creek.

[Part 2 0:03:07] Brotherhood: I can remember Jim saying 'It's getting bloody steep here, Doc.' and the next thing is we really went over the edge. We had missed the drift; we had actually gone over a cornice and my recollection of the reason for that was: we had actually been following a pegged route. So we had followed a drum line. We used old oil drums, fuel drums, to mark the route and we had gone down that route and then followed some pegs to get down onto the sea ice, but in fact something that I think we weren't, I certainly wasn't aware of: there were two sets of pegs. There were some pegs that had been put in by the glaciologists for glaciological surveying and then there were the route marking pegs, and the glaciologists' pegs didn't actually mark the route. We had taken the wrong set of pegs, and so instead of going down the drift to the bottom of the creek, we had just missed the drift.

[Part 2 0:04:19] Brotherhood: Jim, I think, landed in the edge of the drift into fairly soft snow and that broke his fall, very fortunately for both of us. So he just injured both his ankles pretty badly but I think I must have landed on something much harder and I jack-knifed and struck my face on my knee. I can remember I suppose more or less immediately after the fall saying 'Well that wasn't too good.' or that effect I suppose, saying to Jim that I had injured my back and I had a lot of pain in my back. Then I don't remember anything. I don't know whether I lost ... Well obviously I lost consciousness and the next thing I remember is waking up in the tent and Jim offering me a cup of soup or tea or something. I don't know how long he had been trying to rouse me or whether I woke up when he roused me, but anyway there we were in the tent so Jim, quite remarkably, had managed to get me onto a groundsheet and erect a tent around us. As I say he had got a brew going. Basically of course we were then pretty safe because we were protected from the weather and we had food and warmth.

[Part 2 0:05:59] Lee: Was it just lucky that the sledge came down with you and therefore you had access to your equipment?

Brotherhood: Yes, sure. Yes indeed. Yes, that's right. We were fully equipped. It wasn't as though we had just taken off with a box of sandwiches. We never left the base for more than a few minutes at a time without full camping equipment. I do

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<sup>5</sup> He means the sea ice.

remember being a little bit concerned about our medical equipment, whether we had adequate medical equipment because most of the medical equipment had gone out with the field parties that had gone down to the mountains. But we had sufficient.

[Part 2 0:06:42] Lee: Were you able to drink this soup, because you had facial damage I think?

Brotherhood: Yes I was, I could take liquid stuff. I think at that stage I probably wasn't ... I mean I knew I had backache and I can't remember about my face very much, I think Jim might have remarked that I looked as though I had been in a prize fight or something, but my main concern was my back, and I remember giving myself .... We had little tubes of morphine. They were like little small toothpaste tubes of a dose of morphine. I can remember giving myself that to try to relieve the pain and not being very impressed. I don't know whether the stuff was out of date or something. It was old ex-Army stock stuff.

[Part 2 0:07:37] Lee: You had the presence of mind to keep a list of the medication you gave yourself?

Brotherhood: I don't remember that. I might have done. That might have been when we were on base, when we got back to base. Jim would have known.

[Part 2 0:07:50] Lee: So it was a case, really, of sitting and waiting?

Brotherhood: Yes. By this time it had actually started to snow. It wasn't a blizzard; it was absolutely still. It was just I suppose in fact rather pretty snow. It was just little snowflakes coming down without any wind but maybe the visibility had deteriorated by that time. The question is: why did we go on that trip? As I say, my recollection is that we weren't concerned about apparent whiteout conditions because there was very good visibility. It wasn't as though the cloud was right down. There wasn't any fog. It wasn't that sort of extreme type of visibility, and as I mentioned before, Signy was overcast all the time. If we had waited for clear days at Signy we would have never gone outside. So it wasn't unusual for the conditions to be overcast but what, I guess, I certainly hadn't fully appreciated was that there is absolutely no relief; there is no shadow. On the ice shelf, if there is no shadow, you have absolutely no relief at all. So basically we couldn't see the fact that this ... we were going over a cornice rather than down the snow drift. The other aspect of this was probably what is sometimes known as target syndrome. I think we decided to go on this trip. I was pretty keen to get this physiology done and I think maybe that to some extent clouded our judgement a little. I don't know.

[Part 2 0:09:41] Lee: And you were led astray by the glaciological pegs?

Brotherhood: That's my recollection. I don't know what Jim says about that.

[Part 2 0:09:53] Lee: Was there any kind of inquest when you got back to base?

Brotherhood: On base?

[Part 2 0:09:59] Lee: Yes, or later? Was there any analysis of why things had gone wrong?

Brotherhood: Not on base, well certainly not as far as I can recall. I'm sure we must have related what happened, but of course both Jim and I were significantly injured, I guess, and I think at that stage we were probably rather more concerned with attending to medical matters. Then before we knew where we were, of course, the Americans had said they were going to come over and pick me up.

[Part 2 0:10:41] Lee: Well let's just go back slightly, to when you were sitting in the tent still. How long did you have to wait for rescue?

Brotherhood: I can't remember. I don't know. Maybe a day, something like that?

[Part 2 0:10:55] Lee: A day and a half?

Brotherhood: Yes, probably. I really can't remember.

[Part 2 0:11:02] Lee: Do you remember who came?

Brotherhood: Well my recollection is that the first person to put their head through the door of the tent was Alan Johnston, and I remember being actually quite amused by the look of great concern and consternation on his face. Perhaps he was wondering what he was going to find. Were we dead or alive, as it were, or how badly injured were we? But Fanny Hill tells me it was actually him who put his head round the door. Whoever it was, their expression of concern and consternation was very memorable.

[Part 2 0:11:50] Lee: Hill tells me that he and Johnston nearly fell down the same crevasse that you did.

Brotherhood: Oh yes, and that's the dreadful thing about these sorts of incidents: it puts other people in danger. When I read that email from Fanny Hill just very recently, I hadn't heard that particular aspect of it. I just assumed that they had gone down the right route, which was actually reasonably safe. I hadn't realised that they had got thrown off course as well and nearly made the same mistake. It doesn't bear thinking of. That's chilling, that sort of information.

[Part 2 0:12:30] Lee: How did you get back?

Brotherhood: Back to base?

[Part 2 0:12:35] Lee: Yes.

Brotherhood: Well, I can't remember the exact detail but I guess the tent was taken down, we were both put on ... Jim couldn't walk and I obviously couldn't walk, or it wasn't safe for me to walk. I was very carefully handled and strapped to a sledge and hauled back to base. Yes. I can remember being very well wrapped up and very warm and comfortable – basically being quite comfortable. Obviously very relieved I guess, to be picked up. I can't remember much else about that.

[Part 2 0:13:28] Lee: Do you remember being X-rayed?

Brotherhood: Yes, indeed. Well then there are further interesting stories here, actually, because we could get into base down the ramp, down into the garage. As you know, Halley Bay drifts up very quickly. By this time most of the huts were actually drifted up, so the only ways of getting into the huts were up and down vertical shafts, except for the tractor shed, which had a ramp which was bulldozed free all the time. So obviously I was taken down the ramp, but when we were building and fitting out the place, when we looked at the plans, we thought that the plans for the surgery were pretty silly, because there was just an ordinary door opening from a fairly standard passage, and it was absolutely clear that it was not going to be possible ... Any man who was badly injured or ill and basically had to be on a stretcher, we couldn't have got him into the surgery, which would have to act as the hospital medical room.

[Part 2 0:14:42] Brotherhood: So Big Al built folding doors, so that we could actually open the wall up (it was a partition wall), we could actually open the wall up at the surgery and get a stretcher, or in this case the sledge, actually into the surgery, and then I was lifted off the sledge. So it was very lucky that we had actually done that because it did mean that I could be put onto the couch, the medical couch in the surgery, really without any sort of drastic movement of my back. At that stage I knew I had injured my back fairly badly but I didn't know what I had done. We had an old ex-Army field X-ray machine on the base and our electrician, a chap called Wharton (I can't remember his first name<sup>6</sup>), either because he was the electrician or maybe he had even had some experience with using X-ray apparatus ...

[Part 2 0:14:45] Brotherhood: Anyway basically we read the instructions, plugged in the X-ray machine – there was X-ray film there – and we X-rayed Jim's ankles and I was able determine that he hadn't actually fractured anything, that he just had rather severe sprains of his ankles, and we X-rayed my back and I was able to confirm that I had fractured a couple of vertebrae in my back. I think we probably X-rayed my head as well. My upper left jaw, the teeth had been caved in and I couldn't chew on that side because all my teeth were caved in. I had struck my face on my knee, obviously pretty hard, in fact I had jackknifed and that was what had crushed the vertebrae and I had also smashed my face and that had caved my teeth in.

[Part 2 0:16:40] Brotherhood: So the X-ray, that all worked very well. Yes we were able to make useful diagnoses. One of the things that concerned me was that I was getting some clear sort of straw-coloured fluid down my nose, and I was a bit concerned that this might have been cerebrospinal fluid. That's the fluid that surrounds the brain and I thought 'Well if I have fractured my face, I might have just fractured the bone between the skull and my nose and this was cerebrospinal fluid.' That concerned me a bit because that was a potential route of infection to inside the skull and meningitis and so on. I think on hindsight it probably wasn't cerebrospinal fluid but at the time that was my concern. So I gave myself pretty big doses of antibiotics. The cook I think produced nice soup and liquid food and I got on with it.

[Part 2 0:18:00] Lee: Did you ever fear for your life at all?

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<sup>6</sup> Paul Wharton.



Brotherhood: No, I don't think so. No I can't remember feeling threatened in that sense. Obviously I remember being very thankful first of all that we were both alive and secondly of course that Jim got us into the tent. If he hadn't done that I think we probably would have been goners.

[Part 2 0:18:29] Lee: What was the first indication that the Americans were going to get involved?

Brotherhood: Well Ricky Chinn just came into the surgery where I was in bed, actually just on the surgery couch, and said 'The Americans will be here in', I think he said, 'something like 5 hours, to take you to New Zealand.' I think it was literally as short as that. The Americans were already actually in the air and possibly at that time might even have been refuelling at South Pole, and that's the sort of warning that they had. That's my recollection. Other people may say there was a longer period of time. Just going back a bit, I spoke a little bit about my injuries and that I'd fractured my face and was a bit concerned that I might have fractured my skull and was leaking this cerebrospinal fluid, and I sent a telegram to London with full clinical details because I thought it was important that if my condition should deteriorate, experts in the UK would have as much information as possible on which to advise my colleagues, companions at base.

[Part 2 0:20:04] Brotherhood: And the questions is of course: how the Americans learned about my condition? There would have been a lot of traffic between Halley Bay and Stanley in the Falkland Islands, and then of course from Stanley to London. Then I have very recently learned that it is likely that a US Navy listening post somewhat in Central America might have picked up the traffic between Halley Bay, Falkland Islands and London, and that that might have triggered it off. Even the Americans today, this man Michael Spencer who was the navigator on the Hercules aeroplane that took me out to McMurdo, is trying to find out what it was that set the whole business in train.

[Part 2 0:21:01] Lee: In his book *Of Ice and Men*, Fuchs suggests that he in fact rang a friend of his in the American government, but that wasn't able to happen until Monday morning because your accident took place on Friday afternoon.

Brotherhood: Yes OK that could be true. In fact you are quite right. I think I might have got that from an email with Alan Smith (Big Al Smith) recently. But I wasn't aware of that.

[Part 2 0:21:31] Lee: Right OK. So when they arrived, what happened?

Brotherhood: Can we just ... There is just one other thing, which in fact you may be aware of, that while the traffic between my accident and Stanley and the Americans was going on, this is the radio traffic, Deception Island blew up.

[Part 2 0:21:55] Lee: I know. Ted Clapp was on the radio, wasn't he?

Brotherhood: Yes, so in fact I think there was a loss of communication between Halley and Stanley because of course Stanley were very concerned with what was happening on Deception Island.

[Part 2 0:22:11] Lee: So when the Americans arrived, what was the next thing that happened? What do you recall?

Brotherhood: What I recall is a tall fellow in a red anorak who was a naval doctor, a youngish fellow, probably about my age in fact, came in and did a clinical assessment, looked at the X-rays and rather agreed with the diagnoses that I had made both on Jim and myself. He considered that I was getting dehydrated and the other person I remember coming into the base was a photographer, who had I think at least three Nikons around his neck. In those days Nikons were a rather premier camera. The fact that the bloke could have three round his neck was something to be remarked upon.

[Part 2 0:23:10] Lee: I think that the medic who came with the Americans was Dr Noll, is that correct?

Brotherhood: Yes, I think that is right. There was in fact another Noll on the aeroplane who was the pilot (but not related).

[Part 2 0:23:28] Lee: So were you assessed basically to see whether you were fit to travel?

Brotherhood: Yes, yes, and I think he confirmed the diagnosis, or at least the fractures to my back and probably they were what we call stable and the risk of my getting a spinal cord injury was probably not too great. Then having done that, which I don't think it took very long, then I was transferred. I was wrapped up in sleeping bags and put on a sledge and taken out to the plane.

[Part 2 0:24:11] Lee: Were you in pain still at this point, or had the Americans been able to alleviate that?

Brotherhood: No I really can't ... you know it's funny. I can remember having a pretty sore back, a very painful back I guess immediately after the fall and in the tent at the bottom of the creek, but after that I can't remember being in desperate discomfort. I may have taken some analgesics but I can't remember that. I certainly don't remember suffering a great deal of pain at any time, apart from initially.

[Part 2 0:25:00] Lee: You flew to Christchurch?

Brotherhood: Yes. Well just before we get there, I was loaded onto the Hercules and at some point just before take-off an American chap who I thought might have been an engineer came up to me and said 'Well doc, we're not too familiar with this strip, so we are going to get a jet-assisted take-off to help, so if you feel a bit of a kick in the pants and hear a great roar, don't be worried. That's just the rockets.' So duly the plane taxied off for its take-off run and there was indeed a terrific roar and a great sensation of acceleration, and according to Michael Spencer, take-off in 70 yards.

[Part 2 0:25:58] Lee: Gosh!

Brotherhood: Yes, extraordinary. Most amazing. An extraordinary aeroplane, a wonderful aeroplane the Hercules.

[Part 2 0:26:06] Lee: Are you familiar with how it got down, how it landed?

Brotherhood: Oh yes, the story about marking the landing strip with cocoa and drums. Yes indeed. Of course I heard about that later. I have actually got some more contemporary information about that. I think the boys were a bit surprised that the plane actually landed some distance from the oil drums and the arrow that I think they had used to indicate the most appropriate landing place. Apparently they thought it was an experiment of some sort and didn't want to disturb that, and the other point was that they didn't want to be anywhere near the oil drums because of course if they had veered off course or anything like that, they wanted to be well away from any potential source of damage. So whilst they were grateful for the information of the landing strip, they didn't in fact use what the Fids had intended them to use.

[Part 2 0:27:24] Lee: This is coming from Michael Spencer, is it, the navigator on the Hercules?

Brotherhood: Yes.

[Part 2 0:27:29] Lee: So how did you get in touch with Michael?

Brotherhood: Well he actually got in touch with me, because he is researching their flight, their US Navy Operation Deep Freeze flight was VX6 and he is researching history cum personal memoir of the VX6 flight time in the Antarctic. And obviously this was a very important episode in their two tours down there. I think he was down there in '67 and '68. He dug me out of, as one does nowadays, by Googling my name I think, and traced me to the university.

[Part 2 0:28:26] Lee: So what was it like to get that call or that email. Was it strange to hear again after all these years?

Brotherhood: Well I had already rather half-heartedly started doing a little bit of research because although I was the subject of all the kerfuffle, I didn't really have any idea about how it had affected people on base, and because I went off to New Zealand and then went back to the Falkland Islands, I really didn't catch up with any of my contemporaries at Halley Bay apart from Ricky Chinn, and Jim Shirtcliffe briefly. We really never discussed the broader impact on the base and recently, since I have been retired, I thought I really ought to find out a little bit more about this and perhaps write down something about it. So Michael's communication and continuing correspondence with me was rather timely.

[Part 2 0:29:31] Lee: Did you learn anything else from Michael which was of interest?

Brotherhood: Well only the point about why they landed away from the marked strip, and the very short take-off, and then the question about how many aircraft were involved. Apparently there were two aircraft that might have been involved so there is

some discussion of that. The other thing I was interested in was how they navigated at that time down there because it was long before ... In fact a satellite GPS was just coming in in 1967<sup>7</sup>, '66/'67, but they were not using it as a routine navigational aid and he said they used astro and some curious compass which I couldn't understand, something to do with magnetic dip as far as I could make out. I am going to have to ask him more about that. Classic seat-of-the-pants navigation.

[Part 2 0:30:41] Lee: According to *Ice and Men*, there were two Hercules, one of which never landed. It just circled round as a backup.

Brotherhood: That's right, yes. I'm not sure if it circled round at Halley Bay or further south.

[Part 2 0:30:54] Lee: Tell me about the hospital in Christchurch.

Brotherhood: Can I tell you a bit more about the journey?

[Part 2 0:31:01] Lee: Of course. That's why we're here.

Brotherhood: Yes indeed. You asked about the flight. Well first of all I was flown directly to Williams Field at McMurdo on McMurdo Sound, but on the way there Dr Noll put up a drip because he thought I was dehydrated. I don't remember very much about that trip and it is quite possible that he gave me a sedative, or certainly I think I must have slept most of the time. I remember the back of the plane opening at Williams Field and seeing probably Mount Erebus or the other smoking volcano down at ... I think it's Erebus, seeing the volcano in the background. According to Michael Spencer, I wouldn't have been able to see that in the plane that they flew me in because it had a big fuel tank in it. So it must have been the plane that took me to New Zealand. Anyway I saw Mount Erebus.

[Part 2 0:32:22] Brotherhood: Then we took off to go to Christchurch, I should imagine fairly quickly after landing at Williams Field, and we flew off to Christchurch. On the way to Christchurch I became desperate to have a pee. On base I'd just been – I can't remember whether I had been kneeling up or just putting my feet over the edge of the couch. Anyway I had been peeing all right there. So I said to the doctor, another doctor whose name unfortunately I can't remember, an older man, I said to him 'Look, I really need a pee.' So he produced a urine bottle out of this aeroplane and I just couldn't get anything to happen at all. ... really getting desperate and most uncomfortable. So I said to him 'I tell you what, if I just kneel up, if I just kneel I am sure I will be able to pee.' He said oh no, he didn't want me to do that because he was a bit concerned that I might disrupt things in my back, so he tried to catheterise me and couldn't get the catheter in.

[Part 2 0:33:43] Brotherhood: So all this was going on on this aeroplane so they had a pretty comprehensive medical kit. So then I said 'Well look you know I am quite sure if I kneel I will be able to pee.' So he said 'Oh OK.' And I did get up and pee, and I had this wonderful pee. It was just marvellous relief. So that was the highlight of that

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<sup>7</sup> According to Wikipedia, GPS was developed in 1973, but there were predecessors such as Transit used by the US Navy from 1960.

trip to Christchurch. Then we arrived in Christchurch of course. I was taken out of the plane and one of the most vivid memories of the whole business was these two absolutely immaculate US Naval officers walking across the tarmac to greet me and it was Admiral Abbott who was the C-in-C of Operation Deep Freeze and his AdC. Just the image of those two people just to me summed up the really astonishing professionalism of the whole business. It just was the most extraordinary and professional operation. So I was very impressed. That really just brought home to me I think the great professionalism of the US Navy in this particular operation.

[Part 2 0:35:24] Lee: Were you nursed in a US hospital or a New Zealand hospital?

Brotherhood: I was admitted to the public hospital in Christchurch and really handed over to the public hospital system in Christchurch. I'm pretty sure that the New Zealand health service and the National Health Service had a reciprocal arrangement. So in any case I was just treated in a New Zealand public hospital. I was initially assessed in the public hospital in Christchurch. Then I was moved to another hospital at a place, not Brighton, anyway the Burns and Plastic Surgery and Facial Maxillary Hospital just outside Christchurch. It specialised in people with burns, plastic surgery and facial maxillary work and because of my facial injury, I went there where my jaws were wired together so that my mandible, my lower jaw, acted as a splint for my fractured and dislocated left upper jaw.

[Part 2 0:37:00] Lee: You had a visit from a senior Fid in hospital, Ray Adie?

Brotherhood: Yes, I think that is right. Yes, that's right; I had forgotten that. That's right. That does remind me, yes. I think that's right.

[Part 2 0:37:21] Lee: Then eventually you were convalesced with another old Fid, veteran Fid, Bernard Stonehouse and his wife?

Brotherhood: Well, that's right. Two very nice things happened in the hospital. First of all I was visited by a chap called David Brown who had immigrated from England to Christchurch maybe 15 years previously. He had been a great friend of mine. He was actually a lot older than I was. When I was a boy, he really taught me all about fishing and we used to go fishing a lot together and he taught me all sorts of basic fishing skills. He turned up. He had read about my arrival in the newspaper and he turned up. And then Bernard turned up, rather delightfully, just with a single rose, which was very appropriate because I am very fond of gardening and flowers, so it really hit the spot as far as I was concerned. Then his family came along: Sally and their three children (Ann, Caroline and Paul), and when I was released from the hospital they very kindly adopted me for quite a few weeks at their home in the Cashmere Hills just outside Christchurch. Very generous of them.

[Part 2 0:38:54] Lee: Looking back on the whole episode, the whole accident, is there any way it could have been avoided. Was there any procedures that could have been introduced, that would have prevented the accident from happening, or was it just bad luck?

Brotherhood: Well, as I said initially, I suppose we might have taken a bit more notice of the weather, the lighting conditions, and the fact that there was no relief on the ice.

I suppose we could have taken more note of that, but as I say we were rather motivated to complete our round trip for whatever reason, which involved going down the creek onto the sea ice. Yes, the whole thing could have been avoided if we had simply gone down the drum line, to the end of the drum line which was a few miles, turned round and come back again. It's easy to be wise after the event.

[Part 2 0:39:53] Lee: Of course. There was a ceremony in Washington the following year. Were you invited to that?

Brotherhood: No and I wasn't even aware of it. At least if I was told about it, it's not something that I remember. That was when they presented the plaque, was it?

[Part 2 0:40:13] Lee: That's right.

Brotherhood: Yes. I wasn't aware of that.

[Part 2 0:40:18] Lee: Is there anything else you wanted to say about that episode in your life, or shall we look at other things now?

Brotherhood: No I think we have covered it very well.

[Part 2 0:40:29] Lee: I've got some points to ask you about, if I may, going back over the last couple of years of being in the Antarctic. You were trying to weigh left over food as part of the human biology programme. Dave/ Fanny Hill says that you agreed to do gash to weigh all the left-over food and he reckons that the left-over food was booby trapped by the Fids.

Brotherhood: A rotten lot, weren't they?

[Part 2 0:40:48] Lee: Is this true?

Brotherhood: I really don't remember that being made particularly difficult. They may have thought that they booby trapped it but I guess I was fairly intent in sorting ... In case we'd had some stew with mashed potatoes and peas, I think what Dave might have referred to. I probably didn't find it too difficult to sort out the peas from the mashed potato.

[Part 2 0:41:31] Lee: Which they'd carefully mixed together to make it more difficult for you?

Brotherhood: Yes, well they might have done that. The main problem at Halley Bay was because the old base and the new base were running together, and the best kitchen facilities were on the new base, all the bread for the old base was baked in the new base, and that made things very difficult because I couldn't really keep track of the flour that was being consumed on the new base where I was making my studies. So that was the greatest difficulty. But actually my recollection is I had pretty good cooperation. I measured individual food intakes at Halley Bay and when I analysed the results it all seemed reasonably sensible.

[Part 2 0:42:29] Lee: On other medical matters, there's a note here about a urine examination of John Baker. What can you tell me about that?

Brotherhood: Oh yes. Well now a point I wanted to make about that was that: Signy being a biological base, had these people with laboratory skills, and as I told you before, John Baker had done I think, worked as a path lab technician, hospital lab technician, I think as vocational jobs. I had a particular patient on one of the ships who had what seemed to be a urinary tract problem, and John analysed the urine for that and came up with some findings, pathological findings. And the other thing was that this chap who had his appendix out, we had another chap, I think it was a man called Barry Goodman, who was looking at the embryology of penguins and so he was very skilled at cutting microscopic sections. So he actually made microscopic sections of the appendix that we removed and we still have them. So I just wanted to make that point, that there were all skills there that were actually very helpful in the medical sense.

[Part 2 0:43:54] Lee: What about the wildlife around Signy? What particularly impressed you? Were the fur seals around at this time?

Brotherhood: No, that's the point I made. I think it's true to say that the first sighting of a fur seal since, if you like, the fur seal industry ... Oh no, put it another way. The first fur seal sighting since the base had been established at Signy Island. I think I'm right in saying that we observed that. A bull fur seal. I think it was the first time a fur seal had been observed at Signy. So that was I think of interest. You might need to check that with somebody like Bob Burton.

[Part 2 0:44:43] Lee: OK, and your team were studying the Weddell seals as well, and tagging them?

Brotherhood: Yes, there were ongoing programmes of bird ringing and of course the main objective there was to find out really how long ... what the breeding life of the various birds were. Those were mostly the birds that nested in the cliffs – the snowy petrel and the cape pigeons and so on. But the other long ongoing programme was tagging Weddell seals and I think it would be right to say that one of the highlights of the year was when the Weddell cows hauled out onto the ice to pup. They came up through holes like breathing holes that they had cut in the ice and came up through cracks on the ice on the tidecrack, and hauled out onto the ice and pupped and so there were quite a large number of these enormously fat seals delivering these tiny little bundles of fur, very rubbery fur. It was just rather extraordinary that these little things could be born to this cold climate, and the afterbirth or the placenta, which of course followed the pups, was very quickly taken up by the sheathbills.

[Part 2 0:46:19] Brotherhood: But then the other thing that was interesting to observe was how the pups fed, voraciously, from their mothers and within a matter of days they became very swollen little creatures and their mothers shrank rapidly in size. So the transfer of energy, of fat, from the mothers to the pups was extraordinary, and then after a few weeks came the swimming lessons, when the pups had first to go into the sea. These rather charming sights of the mothers going down into the breathing holes and their heads coming up, encouraging their pups to go into the water. So that was rather nice, and the pups bleat just like lambs so I think all of us were rather moved by

this, in one way or another. It was all rather nice. Both the cows and the pups were tagged, and this involved grabbing the rear flipper of the mother seal and reading the tag that had been put on previously, so we knew who she was and where she had previously been tagged, and then also tagging the pups so they could be followed through hopefully to the time that they didn't return.

[Part 2 0:47:41] Lee: Hmm. There is also a note about you monitoring the heartrate of Steve O'Shanohun?

Brotherhood: Yes, I had forgotten this little detail, which was part of Steve's humour. Part of my research was to measure people's resting energy expenditure, so really the best time to do that was first thing in the morning before people got up, and at the same time I used to measure their heartrate and it was obviously interesting to see whether these things would change throughout the year. I always noticed that Steve's heartrate was always quite high. It was always about 10 or 15 beats higher than everybody else's. So I mentioned this to Steve. I said to him 'You know, your heartrate is always a bit high.' I think that this might have caused a little bit of concern. Maybe there was something wrong. I said 'Oh I don't think it is anything wrong. It's just the way you are.' Then one morning I was taking his heartrate and he said 'What's it like today, Doc?' So I said 'It's the usual 85' or whatever it was. 'You don't think it could be due to that, do you, Doc?' So I said 'Due to what?' He pointed up above his head, and strapped to the bottom of the bunk above him there was a full-length nude lady and I think Steve thought maybe that was raising his heartrate.

[Part 2 0:49:06] Lee: Did you agree?

Brotherhood: I said I thought it might be a factor.

[Part 2 0:49:13] Lee: Moving on to Halley, there was ... Again you have very kindly given me some notes here, John, which I am very grateful for. Moving on to Halley, there was the philosophical question about the correct size of a dunny pit?

Brotherhood: Yes, well I seem to remember that being a rather lively conversation, about how big this pit should be. That if there were going to be say 24 people on base for 10 years we hoped the base might last, how big should this pit be? There was [spoken in a regional accent] 'Well come on Doc, how much shit does a bloke produce in a day?' So you can imagine the sort of general gist of the conversation. Eventually this very large pit and deep pit was dug.

[Part 2 0:50:04] Lee: And whilst you didn't have much medical work to do, there was an outbreak of tonsillitis?

Brotherhood: Yes, this was quite interesting. One man got classic streptococcal tonsillitis – an absolutely classic diagnosis – just after Midwinter. This was really very strange because infectious diseases like that, as I am sure you know, are very unusual in the Antarctic, and usually with tonsillitis you have to have some source of infection. Anyway I isolated him because I didn't want it to spread to other people obviously, and with the usual treatment and so on he recovered perfectly well. But then when I went back to the Falkland Islands ... No before that, when I was in the Falkland Islands before going to Halley Bay, I visited Malcolm Slessor who was the



doctor in Port Stanley, and he told me that they had had a rather virulent strain of streptococcal tonsillitis going, in that summer when the Fids were going through. This man, as I say, he developed his illness just after Midwinter when he had been wearing a suit which he hadn't worn since he had been to a dance in Stanley. So it seems almost certain I think, that there must have been some bacteria spores or whatever on his suit which he must have just infected himself with when he wore that suit at Midwinter. That's a certain speculation but it's an interesting speculation.

[Part 2 0:52:00] Lee: And you were doing some medical work on the dogs?

Brotherhood: Yes, veterinary work. The medics were jacks of all medical trade: medicine, dentistry and veterinary work. From time to time the dogs would get in a scrap and they would tear at each other and some of them occasionally got quite bad tears, so stitching dogs up after a fight was something that I did from time to time. But there were a couple of interesting cases, a couple of young dogs had a condition that's called entropion, and entropion is a condition where the eyelashes turn in, so that they irritate the eyeball. It's very often associated with inbreeding, and although FIDS were pretty careful about their dog breeding, from time to time I think dogs and bitches got together for unplanned couplings.

[Part 2 0:53:10] Brotherhood: Anyway these two young dogs had this condition which was very distressing for them. It's a fairly simple condition to treat. You simply take a little slip of skin out of the upper eyelid and sew it together again so it just draws the lashes out of the way from the eye. But the question was how to anaesthetise these animals and I didn't really know how to do this, but I thought that some doses of human tranquillisers might do the trick. So there was this interesting period of time when we titrated pills (sedatives) against these two dogs until finally they became rather drunk and heeled over, and I was able to do the operation which I recall worked very well.

[Part 2 0:54:10] Lee: Did you also have problems with metalwork and bare hands?

Brotherhood: Well yes, I make that point, that we were moving a lot of gas cylinders out of a store into the tractor shed. These were big cylinders, about as tall as we were, and of course they were extremely cold. We had been working fairly hard. I was still wearing gloves and my hands had got sweaty and I felt that I couldn't grip these cylinders well enough with my gloves on. So really without thinking, I took my gloves off and put my hands on these very cold cylinders and of course they were instantly frozen to the cylinders. Fortunately my reflexes were pretty quick and I ripped them off again but took a lot of skin off the palms of my hands. But that's a little thing that one has to watch for. You do it without thinking in a funny sort of way.

[Part 2 0:55:27] Lee: We haven't talked about the beauty of Antarctica and whether you were, as you hoped to have been when you set off there, impressed by the place geographically and geophysically.

Brotherhood: Yes. Signy of course was a wonderful place. Huge numbers of birds; a great variety of birds. The base at Signy was built on the site of the old whaling plan but it looked across to Coronation Island and the main feature of Coronation Island

there was the Sunshine Glacier which was really like a big coombe I suppose you would call it, which even when the weather was overcast, the mountains were high enough behind it to be in the sunshine, and you would get this wonderful effect of the sun shining down onto the ice, onto the snow, and to the glacier below through the clouds. So that was very nice. Signy was, for anybody who loves the outdoors and loves hillwalking, it was just a magic place, a wonderful place to be. Halley Bay I found very interesting too because although it was dead flat, there were always interesting things like the icebergs being elevated by ...

[Part 2 0:56:56] Lee: Mirage?

Brotherhood: Mirage, that's right, mirages. So the icebergs that were basically pretty well below the horizon, you could see them. And you could see the ship; when the ship departed we could see the ship quite some time even though it had probably gone below the horizon because it was lifted by the mirage effect. One thing I remember very clearly was: in the winter, early in the winter when we were in 24-hour darkness, I was still living on the old base and myself and a couple of other fellows were walking up to the new base on a Saturday evening and it was very cold. There was absolutely still but the temperature I remember was about -36 and the first thing I can remember is actually being chilled (a very curious sensation) right through to my skin.

[Part 2 0:58:04] Brotherhood: A very strange sensation, that although one was wearing quite a lot of clothing there was this sort of chilling effect. But the most marvellous thing was that while we were walking along we had this amazing auroral display of these great curtains of green and yellow light sweeping across the sky. The whole sky was covered with this moving light, auroral light, and yet everything was absolutely silent. There was no wind. The only thing you could hear was your own breathing and your own heart beat under these great displays of light in the sky. Just a wonderful experience and we later learned actually, as the auroral observations continued during the year, that that happened to be the best display of the year. So that was a fortunate experience.

[Part 2 0:59:09] Lee: This is the final question, John. I am just wondering how your time at BAS rates in the top ten of periods of your life?

Brotherhood: Oh, very high. Of course there were times when one was a little bit down, as I think we all are in our lives wherever we are, but the overall experience was an immense privilege, a wonderful experience, and I think that we were very lucky. We were at a time when there was still a sense of real adventure and pioneering. We really ran our own lives entirely down there. Radio communications, they were adequate but of course they were pretty primitive and most communication was done by Morse code and teleprinters. I think one of the wonderful things about the Antarctic is there aren't any fences. There are no physical fences and in a curious way I think no psychological fences. So I think a wonderful freedom at a time of one's life: a young man, and I hope for the young women who go down now, we were just able to fully appreciate and experience it.

[Part 2 1:00:41] Lee: Well it's been a real privilege talking to you by this new-fangled technology, John. It's been great fun. Thank you very much indeed.

Brotherhood: Well Chris, thank you. I am most grateful to you. I must say I think you are doing a wonderful service. I think it's a very important way of really getting to grips with social history. So thank you and congratulations on your hard work.

[Part 2 1:01:07] [End of Part Two]

ENDS

Possible extracts:

- Difficulty of getting equipment on time. [Part 1 0:08:11]
- Pleasures of the voyage South. [Part 1 0:16:31]
- Appendix operation at Signy. [Part 1 0:32:20]
- Water supply and toilets at Signy. [Part 1 0:38:16]
- Tooth extraction by an amateur dentist. [Part 1 0:41:14]
- ‘...a load of wind and piss.’ [Part 1 0:49:10]
- Problems with being both doctor and base leader. [Part 1 1:00:00]
- Conditions at the old base at Halley Bay. [Part 1 1:05:55]
- Writing *Kurafid*. [Part 1 1:10:15]
- Another appendix operation. [Part 1 1:11:56]
- Contraception jokes; Midwinter pantomime [Part 1 1:14:26]
- The ice cliff fall accident [Part 2 0:00:26]
- The rescue to base. [Part 2 0:10:41]
- Evacuation by the Americans. [Part 2 0:18:29]
- Peeing in the plane.[Part 2 0:32:22]
- First sighting of a fur seal at Signy.[Part 2 0:43:54]
- Fur seal pups. [Part 2 0:46:19]
- Pinup causes spurious heart rate reading? [Part 2 0:47:41]
- The correct size for a toilet pit. [Part 2 0:49:13]
- Delayed tonsillitis. [Part 2 0:50:04]
- Veterinary work on the dogs. [Part 2 0:52:00]
- Bare hands on a metal gas cylinder. [Part 2 0:54:10]
- Mirages and an aurora. [Part 2 0:56:56]