

An Interview with  
RICHARD BAMENT

OH 445

Conducted by Thomas J. Misa

on

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Control Data Corporation History Project

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## Richard Bament Interview

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### Abstract

In November 2013, CBI director Tom Misa conducted a series of oral history interviews with 13 former employees of Control Data Australia (1963-89) including the details of each person's career, before and after working for Control Data. Topics that are common to many of the interviews include Trevor Robinson's key role in organizing Control Data Australia; the early computer sales in Australia to the Bureau of Census and Statistics, Department of Defence, Postmaster General, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Bureau of Meteorology, and several prominent Australian universities. Control Data Australia did business data processing for such large concerns as Broken Hill Proprietary (BHP), Telstra, and others. A distinctive emphasis was its work in developing computer systems for race-track betting for the state of Victoria's Totalisator Agency Board (TAB) as well as for other Australian states and New Zealand. Other topics include relations with Control Data's headquarters in Minneapolis, business data processing, data centers, database management, networking and Cybernet, and projects done in several Far East countries.

Interviews were conducted with Richard Bament, John Baxter, Ron G. Bird, Tony Blackmore, Lyle Bowden, Marcel Dayan, Ian Downie, Julie James, George Karoly, John O'Neil, Garry Pearce, Rob Robertson, and Bruce Wilson.

Misa: It's the 21 November 2013. My name is Tom Misa; I'm in Melbourne, Australia and talking this morning with Richard "Dick" Bament. Richard has a background of working at Honeywell in Canberra, beginning in 1965. Our interview today, will be focusing on his Control Data Australia time, 1973-1986. So, Dick, to start with, can you say how you became interested in computing and how you became active in the computing field?

Bament: Tom, my career initially started in the U.K., where I worked for a company called Hoffman's Manufacturing Company engaged in the manufacture of ball and roller bearings. And I did an apprenticeship there, which was followed by a period of national service, and then immigrating to Australia. On arrival in Australia, based on my background and training, I had electrical mechanic and electrical fitter qualifications. I worked in Australia initially as an electrician for a short period of time, and then joined the Electricity Commission in New South Wales and completed a training course as an instrument fitter. This position I held for probably two years, and then moved into power generation and subsequently saw an advertisement for trainee computer engineers with Honeywell. I applied and was appointed by Honeywell in March 1965. The career commenced, obviously, with Honeywell. It was a full time training course that extended for six months.

Misa: Six months?

Bament: Six months, full time; understanding the Honeywell H800, from the bit level up. So every aspect of the hardware and peripherals was taught in that six-month period. The work involved shift work and it was with the Department of Defence in Canberra, where Honeywell had systems. Honeywell H800s with the Department of Army, and Navy. The Air Force had a Honeywell H1800 and Defence themselves had an H8200. Subsequently, there were Honeywell H200s added to the configurations and a Honeywell 316 was installed at Royal Military College Duntroon, a military college in Campbell A.C.T.

Misa: And you commented to me just before we started the interview, that in fact, the H8200 may have been a non-standard machine.

Bament: I tend to feel that, Tom. I haven't seen reference to an 8200 subsequently, so possibly it was a specific machine developed around the Department of Defence. With the period that I was with Honeywell, there was a merger between Honeywell and GE, and for the folks in Canberra, that was really a non-event.

Misa: A non-event?

Bament: A non-event in the sense that the GE involvement in Canberra involved two persons looking after keypunch machines at the Bureau of Stats. So the Control Data Bureau of Stats site obviously had a holding of General Electric keypunches, so an extensive range of keypunch equipment there and two employees looked after them.

Misa: The Bureau of Stats was also the Census?

Bament: Same thing. Now, the merger between Honeywell and GE Australia, in general, was the fusion of two similar size companies, with similar installed number of machines, and structures that reflected that installed base. So we've got managers, and various hierarchy in both companies. But two different philosophies from an engineering standpoint. Honeywell was a proactive support organization, in the sense that there was systems that back up from the engineering level right through the ability to put a U.S.A. engineer on a plane and fly him to Australia, if the problem became large. Whereas the GE approach was very much more disciplined in the sense that there was paperwork systems that directed that all machines would be identical. For example, if there was a peripheral device and it had a stainless steel screw and it was found that this stainless steel screw was causing a problem, there'd be a field change order FCO that would change that stainless steel screw for a brass one and that would be done on *every* machine regardless whether there was a problem or not. There was also a support structure similar to Honeywell providing U.S.A. escalation on problems.

Misa: So each machine would be similar or even identical around the world.

Bament: Identical, correct. Whereas the Honeywell approach would be the problem would be identified and the fix would be known that the screw needed to be changed, so if you experienced the problem, you would replace that screw. That's obviously a

simplistic view, but that's how it was structured. So consequently, you've got two engineers with different background philosophy that causes difficulties. The GE engineer would not function without that piece of paper authorizing, whereas the Honeywell engineer would jump in and tackle the problem, whatever it may be. Now this didn't impact Canberra at all, as we just absorbed the two ex-GE people. However, Sydney and Melbourne did undergo serious difficulties in terms of bedding the merger down. As a consequence, I was transferred from Canberra, where I'd been the engineering manager, and I was moved into Melbourne as engineering manager to assist in resolving some of the difficulties.

Misa: Do you want to make any observations about the nature of those difficulties?

Bament: Well, when I arrived, the engineering group had set up a room that was identifying hot sites, so a room dedicated to tracking really difficult or unhappy customers. So it really became an exercise. I was going out and meeting clients that were unhappy with the service levels. And at the same time, readjusting the focus of the engineering personnel to meet the challenges and react there. We had more problems than we had people, so I did things like take the most junior engineers and have them go and physically reinstall machines. Honeywell had developed a system whereby peripherals could be upgraded in the field. So you could take a disk drive, for example, and it'd be designated an X-Y-Z model, and the customer would pay \$10,000 for it, for example. At a later stage, when the customer required higher capacity or something, it was possible to apply field changes to the equipment, such that you change the model. So again, in

simplistic terms, you might change pulley sizes so that speed would change in the device, and then you had to adjust the electronics to match the new speed parameters. So in a simple sense, you're upgrading a device in the field.

Misa: It becomes a new model.

Bament: A new model, absolutely. And consequently, it was possible, if that wasn't done carefully, you could create a model that didn't really exist. If you only managed to do three-quarters of the change, you've now created a hybrid that just doesn't work properly and there was a measure of that in the problems that were existing. It came about, I believe, through the different approaches of the two organizations. So that was the style of the problem that we faced, and fortunately, this approach resolved some issues reasonably quickly, and we were able to address the balance in a controlled manner and go back to business as normal. But it really was a reflection of the two different cultures coming together and not quite fitting like a hand in a glove, you know, with an extra finger or something. Just didn't quite fit.

Misa: Some problems that you were in charge of trying to resolve or manage.

Bament: Yes. That's what motivated the transfer. I was the engineering manager down here, and then, I guess in 1973, I was approached by Control Data to join them. On 25 June 1973, I became the Southern District Customer Engineering Manager for Control Data. And then in February 1974, I assumed responsibility for Western District

Operations as well, so that took me across to Perth. So at that stage I was looking after Victoria, South Australia, Perth, and Tasmania.

Misa: And was that broadly, similar type of work that you'd been doing at Honeywell-GE?

Bament: Very similar. I mean, slightly different groupings; very heavy university involvement down here. University of Melbourne, Monash University and R.M.I.T. all had Control Data equipment, whereas Honeywell was somewhat more commercial. But still, very similar, Tom.

Misa: Were there any notable aspects of the Control Data culture? You contrasted Honeywell and GE; were there things that struck you about coming to work for CDA that were novel or interesting?

Bament: When I first joined, located at 598 St. Kilda Road here, and it was at a time where the company still had tea ladies providing morning and afternoon tea, and biscuits, etcetera, you know, very nice, very sort of dignified. And the company also had a lending library of technical books, which sort of surprised me. That didn't last for long, but it was certainly there when I first joined.

Misa: The merged Honeywell-GE didn't have a lending library?

Bament: No. With Honeywell, there was some innovative things going on. The principal business was Sydney and Melbourne during the 1960s, and obviously Canberra, with the defense system. But a system was put together to dispatch engineers in Honeywell from a central office in Sydney, so it's at a time when pagers were just starting, had just been invented, really. And the very first pager that we had was a device that was the size of probably two house bricks.

Misa: Two house bricks. So pretty good sized.

Bament: Yes. And it came in a leather case, you know, a stitched leather case, and was only capable of beeping. You could dial a telephone number and that specific pager would beep. The system was set up with engineers in Melbourne and Sydney [to] be deployed. So a customer would phone into a local telephone number in Melbourne, and that had a dedicated land line to the Sydney office and a couple of female operators sat on that telephone line [and] could receive a call from a customer. They had a database and they could look up the engineer with the appropriate skills to address the problem, and through the use of a pager they would use this landline again to activate the pager, and the individual with it, whoever it might be, would have this very large device that would just beep; that would say you need to call.

Misa: Call and find out the problem.

Bament: That's right. So he would use the landline, probably use the customer's phone, wherever he may be; dial into a tie line and be dispatched to the problem.

Misa: And that was during the Honeywell time?

Bament: Honeywell time, but that was very early on 1966, and at the time, considered very smart. Sorry to distract like that. I then moved within Control Data into data services and Cybernet. And that occurred in 1976.

Misa: That strikes me as being a fairly large change in your job responsibilities.

Bament: It was a change. I look back and Control Data was organized in very strong vertical segments. Engineering and marketing were almost separate entities. Each group performed their specific functions, but there really wasn't much crossover between the units. I think it probably was a weakness, in hindsight. The focus wasn't on the customer; in the sense the salesman is addressing the needs of the customer. The engineering function is looking after the needs of the machine. They could've done better by bringing those two functions closer. That applies across, I think, all those product families, you know what I mean? Each seemed to operate in isolation.

Misa: Was data services an attempt to bridge those two?

Bament: No, I don't believe so. Tom Kopp, who was the regional manager for data services at that time, he'd been selling and was responsible for a number of important sales that Control Data had; I think he sold to tax office, and certainly around census. So, Tom Kopp had been ex-IBM and he'd come to Australia from Yugoslavia, I think. He'd worked on the Snowy Mountain scheme, which was a very large project. So his background had been in engineering. Anyway, Tom headed up the small team; there were two sales people; Steve Samson was the southern district sales; and I was the operations manager; and Gus Myer based in Sydney was the northern district manager. And that was the data services management team.

Misa: What do you think was the purpose of data services for CDA?

Bament: It was a method of giving a small slice of a large machine to an end user. So we had developed quite a sophisticated network and people could connect via acoustically coupled Texas Instrument terminals and dedicated batch terminals into data services. It was used as an entrée for companies that were contemplating buying a mainframe, so the two were tied together, but really in the marketing sense.

Misa: Now, there was data services, and there was also Cybernet services. Those aren't one and the same, though.

Bament: Well, data services was really probably an umbrella-type term, whereas Cybernet tended to be probably viewed as real time. You know, we had batch offerings running the SCOPE operating system and time share, and also Kronos.

Misa: My understanding was, at least in the early years, Cybernet was organizationally connected to Minneapolis and over time brought into organizationally reporting more to CDA. I think it was the early 1970s that it was more directly connected to Minneapolis. Did you have any sense how the relationship to Minneapolis worked?

Bament: There was a machine in Sydney, in the Sydney head office, and that was used for time sharing, so it would've been linked down to Melbourne. About the time I joined Data Services, there were two machines in Melbourne, as well. There was one in the BHP house, at 140 Williams Street, in the city, and a second in 598 St. Kilda Road CDA office.

Misa: Big commercial mining user.

Bament: Yes. It's BHP Billiton, a very large mining; Broken Hill Proprietary, it stands for.

Misa: So in terms of running a Cybernet type of network, there would be a machine in Sydney, there were initially links to Melbourne, then two machines in Melbourne.

Bament: They continued to be discrete, in the sense that you've got a Sydney machine — this is the time I became involved — so you've got a Sydney machine with access points radiating out from it. I'm not sure there was a link between Sydney and Melbourne, I really can't remember. And similarly, the machine in BHP was a batch offering. So again, around the CBD (central business district) area, there would've been batch terminals. Again, some may well have been in a user's office, where they were a fairly heavy user, and we would put the equipment there free of charge, providing they allowed public access, as well. So you'd get a situation where a room would be set up as an access point, so it was a line printer, telecommunications, and so on. They were connected with 200-user terminals, so the common name was 200UT.

Misa: So it's a way of taking a client and turning that into an outpost, or a CDA office within this physical building of BHP.

Bament: Yes, it's a little bit like you might view an ATM today, you know, an ATM will turn up in a shopping mall or somewhere else. It's the same sort of thing. So it's access to the system. [I] joined the data services in 25 October 1976. There was, at the time, some sort of difficulty and I really can't identify what it was. People were obviously not happy or something because I've got a note from Tom Kopp here saying, "I'm very pleased to hear everywhere the positive attitude outcome from the Hobart Convention. In retrospect, it was a great success. It is my belief that greater employee satisfaction will result, which after all was the objective. The idea was yours and I congratulate you." Now I can't tell you what that was about, but obviously it had positive results.

Misa: So it was a meeting in Hobart, in Tasmania?

Bament: In Hobart, Tasmania. It was a meeting where we took the sales people, the analysts, and wouldn't have taken all the operations people, you know, but there were some operations people. And it must have been an occasion to clear the air and set a new direction or something like that.

Misa: Responding to some disagreement or some uncertainty.

Bament: It's hard to know what the situation was, you know? It was a fairly turbulent time and some sort of difficulty. Now you're probably aware of the Hundred Percent Club.

Misa: Yes.

Bament: And what that was all about. I got an invitation as a special guest, not being in a marketing role, but as a special guest of the Hundred Percent Club in Acapulco.

Misa: To Mexico.

Bament: Yes.

Misa: Do you remember what the cause of that was?

Bament: It would've been as a reflection of the success of Cybernet. It'd have to be. You know, as the business grew very rapidly, through that second half of the 1970s, it was the precursor to putting in the Knox Data Centre. You know we were facing growth of something like 30 percent a year, so there were real challenges just meeting that sort of demand.

Misa: So doubling every three years, or so.

Bament: Right.

Misa: That was especially so the latter part of the 1970s; 1975 onwards.

Bament: Yes. Now the difficulties that we had with discrete systems, that really you couldn't use [them] to back up or support one another, and each requiring power, air conditioning, specialty sort of services.

Misa: These are piecemeal computer facilities with the expectation or aim of them being wielded into a single system.

Bament: Yes. It became obvious, you know, that we'd got to do something by 1977 to 1978; you could tell that we just wouldn't be able to cope. So it was sort of resolved that

a single center with a network was the answer because we could put infrastructure around a single center that we had no hope of doing with the pre-existing centers.

Misa: That was the genesis of the Knox Data Centre.

Bament: Yes, that's where the new central system finally was located.

Misa: You've written quite extensively about that but just for the completeness here, could you say just a bit about the facility. It was purpose built and quite notable in terms of thoughtfulness, scale, details; we don't need to go into all the detail that your essay does.

Bament: Sure. The need was clearly there and we went through planning to determine sizing and so on, and produced a report to support the need. And I actually hand carried that to the U.S., probably in 1979, and there was interest. I'd arrived with a manuscript to take around and seek approvals, and I couldn't find anybody to tell me the approval process. Just really couldn't.

Misa: So you met with a half dozen or more people, but there wasn't a single.

Bament: No. You'd expect they'd say Bill Norris must sign off on this, and Bob Price must sign off on this, and others. But I arrived and started seeking approvals, and it was

interesting. I actually took some Australian lapel badge flags. Remember those little enamel . . .

Misa: Oh, yes.

Bament: . . . well, the Australian flags. So you know, I'd sort of wander around the CDC headquarters tower trying to find the next person I needed to get the signature. After the signature, I'd sort of ceremoniously award the pin. [Laughs.]

Misa: Walk around with these Australian flags saying I got this one, I got that one.

Bament: It sort of caught on, you know, in a few days. Anyway, we managed to get the approvals, or not approvals, you know. Norb Berg was one of the people, and in fact, I didn't really understand why, but he was extremely helpful in getting me through that process. He obviously decided, or knew, who should sign off on our thing.

Misa: Norb was famous for being able to expedite things through this more informal structure. He knew what was important.

Bament: Yes, there's another example of him doing just that. Anyway, I was on a visit about that time . . .

Misa: That was for, I think it was \$A 3 million.

Bament: Yes, it was \$A 3 million and we actually got it in on \$A 2.8. We actually did it for 2.8 but the budget was for three. So the actual was 2.8 on a three million projected cost. An interesting aside: it could've been that visit, but it was about that time, I met with somebody — honestly, I don't know their name — but he was working in a staff position to Hank White. And Hank White, I never met the man but he had a reputation of being a pretty firm operator. And this person reporting to him, in a staff position, was responsible for data services. And PCs sort of emerged in the late 1970s; basically single floppy disk drive, small amount of memory, perhaps 256k of memory or something like that; that was the typical PC of the time. And Control Data bought Zeniths and Columbus, and with a name like Columbus, you can imagine it being fairly early on. Now, I'd had a discussion with a guy by the name of Bob Easson who worked in Control Data; E-double-S [pause]

Misa: E-double S?

Bament: I think it is. Yes, he was in Control Data, and he was working really in a role of finding new applications for services and, he set up a system of what was teletex; you know the sort of thing you have on television.

Misa: Yes.

Bament: So, we actually ran the teletex, the very first teletext service in Australia. And Bob sold it to farmers. They got information about crops, and weather, and those sort of services.

Misa: Crop prices?

Bament: Yes. So, you know, we were utilizing the network that we then built to deliver other services, really. Anyway, we digressed, I think.

Misa: You had PCs emerging and that was one of the things that Control Data and almost all mainline computer companies were quite weak in seeing.

Bament: Yes. I had this meeting with this individual, and it was over a cup of coffee. He was sitting there, what do you think for the future? And this discussion with Bob Easson had centered on giving users a PC so that they would prepare their job submissions — we were talking about timeshare, really — and they would be able to prepare offline and then just submit the job, and receive the information back.

Misa: So cutting out printing, and some of the data handling, I suppose.

Bament: Well, we provided services with a fairly complex pricing algorithm, such that connect time would be metered, and keystrokes would be counted, etcetera, etcetera, to form the profile of the input from the individual. Now what that meant was that you were

paying a lot of money in between keystrokes and whatever else you might be doing yet your compute time was very small. So really, customers were paying a premium to connect to the system rather than the amount of computing they were doing.

Misa: Right, the point a couple people have mentioned is that Cybernet's pricing structure ended up punishing data intensive uses and favored computational intensive uses.

Bament: That's right.

Misa: Because if you sent a small amount of data and it needed three, four, five units of CPU time, that was one thing. But a more database or commercial-oriented application would typically have a lot of data but not necessarily a lot of CPU time.

Bament: Yes.

Misa: So there was a pricing differential.

Bament: You see, getting it there, you're sitting at a keyboard typing, so you're actually connected to the system in the sense that you have a telephone link. So it's counting that, your connect time, you know, and effectively all you did was keyed in 2,000 words or whatever, and you paid for that connect time. So the idea was that if we gave them a PC,

they could [do] that offline. Yes, it would impact your revenue but you're able to hopefully retain the user.

Misa: So that would be a different model about how to set up, essentially, a computer network, how to set up Cybernet. And I suppose there'd be quite a discussion about whether you'd have users with their own personal computers.

Bament: That's fine, too. You know, I mean we could accept a hookup from anything. It could've been somebody with a larger machine even. I mean, what we're interested in is processing data, the method of connection is not important to us, really. So when asked what do you think we should be doing? I told that story and said I think we should be giving away PCs. And this guy just looked at me and said you're 180 degrees out of synch. I mean, four years later that entire business was gone.

Misa: Yes, wow.

Bament: So I mean, there's an individual that's pointing the direction from I think it's on about the thirteenth floor of the Golden Obelisk [CDC headquarters] there in Minneapolis.

Misa: He's reporting to Hank White, one of the senior CDC executives. So unfortunately, if that decision had gone a different way, well, Cybernet could've been something quite different, a more distributed network.

Bament: To me, it just sort of reflects the isolation almost of the executive from what was really happening out in the main world, you know?

Misa: That was a discussion you had in Minneapolis, based on experiences here.

Bament: That was simply; yes, a perspective from down here, but obviously not the view from head office, you know? They're seeing it differently. So that was interesting, and at that stage.

Misa: Were there any other differences? Could be cultural differences or differences in outlook?

Bament: It was at the time when Australia was wanting PLATO as an addition to the other offerings. And I met with the PLATO folk, and the difficulty we had at the time was cost to introduce PLATO down here. And I went and suggested that it should be run on the same mainframe as the time-sharing.

Misa: So the Network Operating System [NOS], was that right?

Bament: Yes. I mean, you know it's another application, at the end of the day. Why not run it concurrently with something else? And I was told that was impossible. No, you've got to have a dedicated mainframe to be able to do this. And, anyway, I came back to

Australia. Roger Dickson was the analyst manager we had out of Knox [Data Centre], so he headed up the group of analysts. We probably had four or five program analysts out there. And I really gave Roger the challenge of getting PLATO to run concurrently with NOS. And he and the other guys did it in about six to nine months, they had done it.

Misa: Six to nine months to achieve the impossible.

Bament: Yes. What it highlights is this vertical isolation between the product families, and this idea that you've got to have a mainframe, for example, to run it.

Misa: Now, the PLATO plus the NOS operating system, did that run in Australia?

Bament: Yes. With the new center, we were able to get a new machine so we finished up with three machines running in the data center and we combined the batch offerings that had been in Sydney and Melbourne on the one machine; we had time-sharing on another; and we had PLATO on a third machine.

Misa: So you just split the machines then?

Bament: Yes, they were physically split machines. But it was only possible because of adding a new machine to the mix, pinching off one of the old ones. That actually gave us the flexibility as well to migrate between the various systems. So you could start off with a brand new building, put in the new machine, leave everything else operating as it

always was, and then gradually migrate the offerings to the new machine; and then freeing up another one, bringing that in to the center, and so on. So we were able to plan the thing so that we didn't give disruption to clients while we're making the consolidation.

Misa: A question I've been asking is whether things that you may have innovated here in Australia — and it could be the use of the machine, or the structure, or the programming — do you have any examples of how those innovations here were shared beyond Australia? So it could've been to the Far East, or Europe, or to Minneapolis?

Bament: No, we actually did support the Pacific Rim countries from down here, once the center was operational. It was a change. It ceased to be data services, Cybernet, and the service division had become International Comsource. I was the Pacific Area Manager for Comsource, so we had responsibility for Japan, [pause]

Misa: The name came from computer and resource?

Bament: Yes, Comsource.

Misa: So you had managerial responsibilities then also for the Far East.

Bament: Yes, it was Japan, Korea, Taiwan.

Misa: Care to make any observations about the experience of operating in those countries, in addition to Australia?

Bament: It was interesting, in the sense that we developed a fairly complex network down here, and the people in Japan wanted their communications guy to come down and experience what we had in Australia. A young guy arrived and spent all his time with the people around the network, and so on. He had only been in the country I think three days, and he produced a complete schematic diagram of the network. Now that was something we didn't have ourselves.

Misa: Really?

Bament: [Laughs.] So you know; and it's just a little aside, but he'd drawn the entire network and did it in that period of time.

Misa: By the network — just so we're clear — that's all the different computers that were forming the network in the Far East and Australia?

Bament: No, no. The only links, really, outside of Australia connected to our network, went to New Zealand. So we provided services directly to New Zealand, so any data services were actually coming out of Knox. We had a link to the Call 370 to the IBM product that had been acquired by Control Data through . . .

Misa: The Service Bureau Corporation purchase.

Bament: Service Bureau. Initially it was called something like Call 370. But the Service Bureau, we had a direct link to the U.S., so we were selling that product as well out at Knox. The amount of involvement, really, with the countries was fairly minimal, in the sense that it was new and we provided technical support by telephone. In fact, I remember one time, I'd been trying to get people to try and understand the different cultures and with the view of mating this sort of cross-culture fertilizations. If we're going to support them we've got to understand some of the aspects of the cultures that you're dealing with. Earlier on, an engineer actually died in Hobart; a guy had a heart attack or something and died.

Misa: In Tasmania, then.

Bament: Tasmania, yes. I approached a guy here to go down to cover the situation, because there was just one engineer down in Tasmania. And the guy's background was, I think he might've been Thai; and I asked him if he'd go down to Tasmania and he was fine; he said why? What's happened, I said, the guy died. He noticeably, went pale and said "I can't go." It was because of respecting the spirit of the person that was deceased. So there was a lesson in that for me. You really do need to understand culturally the people you're dealing with. So that was just a little experience.

An incident that I didn't mention and should have was back in the Honeywell days, and it was part of the Vietnam War impact. At the time, there were two incidents that stayed with me. The first was we used to receive paper tapes from Vietnam. Now these were punch tapes done on Teletype FlexoWriters and the paper tape readers were simple optical devices. And they worked with oiled tape. Now, oiled tape and dry tape, just by looking at it, you can't tell the difference; the amount of oil is very, very small. We received these tapes and obviously, it's sort of important these be read in. If you put a dry tape in it might run for a minute and then just slow down and would actually stop. What was happening was the clearance; you can imagine a paper tape being transported past an optical reader, and a brake set very finely so that if you read the tape and you stop and then start again, you don't want to lose a frame so you would set it extremely fine so that if it said stop, it would stop on the frame that you were currently reading. So the machines would be set up very closely, and a dry tape would actually generate enough heat to stop the movement of the tape. To get these tapes — and they'd come in boxes mixed oiled and dry tapes — would be in a batch.

Misa: So you couldn't tell if they were oiled or dry tape. It was consequential for how it would work.

Bament: Yes. You'd have somebody standing there as it started to physically slow, would spray it with oil. You can imagine running through hundreds of paper tapes and the machine would be literally running in oil at the end. Give it a squirt, you know. But the amusing part, you go through all this effort and you think you're doing something

marvelous for the troops that are out there that are desperately needing supplies or whatever it is. The processing would go on for two hours and then printers would start up and out comes the fanfolds and printed material, and you look at it and it'd be golf balls, and ballpoint pens, and condoms, and aspirins, and you know . . .

Misa: All the requirements of military forces.

Bament: . . . all that miscellaneous stuff. [Laughs.] Just miscellaneous stuff, you know, so, interesting.

Misa: You said there were two notable parts going back to your Honeywell days.

Bament: The other one associated with the Vietnam conflict, I think it was just prior to my time coming to Melbourne that a protest went down St. Kilda Road here. They stopped at 400 St. Kilda Road, which is the Honeywell head office, and somebody with a 12-gauge shotgun that was loaded with a single steel ball, went in through the front entrance and there was a data center immediately behind the front entrance doors. It was a GE mainframe, with a 1648 front end on this machine; and the person leveled the shotgun and fired this steel ball through a plate glass window and the cabinetry of the Honeywell CCC 1648, and there was a receptionist sitting adjacent to this. The outcome stuck in my mind because of the sort of threat that you can come under because of activities of Honeywell are in, say, their work in defense and so on. And that got translated into attacking Honeywell Information Systems down in Australia. The amount

of damage was negligible, actually, apart from punching a hole through the cabinetry, it really didn't do anything because there wasn't much inside that part of the box; it just sort of went through and out the other side; didn't injure anybody. The cabinetry had a piece of cardboard covering up where the steel ball went through. It was like a patch over a blind eye.

Misa: You mentioned in your essay that one of the lessons you took from this, though, was the need for caution and physical security for the Knox Data Centre.

Bament: That's right, so it was a lesson learned from that experience. I mean, Control Data had military connections, probably not in the same sense as Honeywell, but producing ruggedized computer systems and things that I was certainly aware of. And, I mean, Honeywell produced sighting systems on the helmets of helicopter gunships, such that wherever the pilot looked that's where the guns would aim. So that was one of the sort of things that was publicized. I think it was some sort of linkage with napalm, as well, which at the time all added up to this attack on the office.

Misa: Back in Minneapolis there was the Honeywell Project especially active during the Vietnam War from 1968 into 1990 or so. Honeywell really did have a unusual high profile as a military contractor and generated a lot of controversy because of that.

Bament: You made mention when we met last week that you're interested in the advanced sort of things that Control Data might've been doing. I only visited once to one

of the high security labs over there. Something that really fascinated me was they had a mural on the wall of a pod of whales.

Misa: Of whales.

Bament: Whales. So there's large ones, small ones, and so on. And the ocean had been removed, so this is just a picture of whales on a wall. I commented about it and whoever was showing us around said oh, they're real and it was taken from Landsat imagery; Landsat being the satellites. They'd stripped off the ocean and there's whales. And you think, well, you wouldn't want to be a submariner, you know? And this is back in 1980. So some clever stuff going on, obviously.

Misa: So this wasn't an artist's depiction, it was an actual Landsat image?

Bament: With everything else removed.

Misa: . . . everything else in the ocean can be seen, too.

Bament: No simply whales

Misa: I think you said you worked through 1986. Do you want to say anything about your experiences or observations in the middle or latter part of the 1980s?

Bament: Well, the late seventies in some ways created a pinnacle, I think, in Knox. We really did have an excellent relationship and everything was working extremely well. I've got a note here that Tom obviously gave me at the end of 1979, when he was leaving data services to go back to systems area. I'd just like to read this. "The greatest satisfaction in my four years with Cybernet has come from colleagues like you, and it was by no means an easy decision to quit a job so fulfilling and an environment as friendly as the one you helped create. I feel that you and the others in our small management group have built something very worthwhile - a sound profitable business, and a well-motivated professional organization, which is the pride of Control Data in Australia. Looking back on the past years, one thing I see clearly, my greatest fortune was to surround myself with men like you who have the drive to make things happen." So that was Tom leaving data services. "I'll always treasure our close working relationships and the good times we had together. Thanks for all the things that you have done for me." Tom Kopp.

Misa: So you're reading a handwritten letter?

Bament: Yes. That was it; that was his parting gesture and it was great. Here's something else we should probably read. Bob Brandenburg was in Cybernet services U.S.A.. Our matrix management was very strong back in the 1970s in Control Data. You're familiar with that I guess?

Misa: Yes, it works perfectly as long as it stays on paper and can be quite elegant, but in practice it can be a nightmare.

Bament: It can be quite difficult. Bob was my contact, if you will, in the U.S. so he's my product family link to the U.S. and he wrote on 12-30-1980 — he's written and then copied numerous people, in head office, Marv Swenson, Dale Rostamo, Peter Van Beek, are a few names you know, but they're head office folks. Anyway, Bob's written from reflecting on PAPFE, which is Pacific and Far East Comsource activities during 1980; "I think it may be one of the understatement of the year to say that the accomplishments of you and your team have been remarkable. Construction of a new cluster center building, installation of a new large scale system at the new center, introduction of NOS/CE consolidation existing centers to the cluster center, installation of PLATO, all on or ahead of schedule, with minimal user impact. Congratulations on a job extremely well done."

A similar thing from Vern Sieling in October 1981, "I wanted you to know that I appreciate very much your efforts in bringing the Australian PLATO Cybernet NOS/2550 project in on time, within cost, and better than its performance goals. It is an exceedingly important new baseline product for International that will help us bring country profitability in Services sooner and will let us even think of starting new service opportunities in small countries in the future. I'm proud of your contribution. I wanted you to know how pleased I am." Now that's referring to that NOS PLATO exercise that we never actually implemented, but he's talking about it being possible to take it into smaller countries.

Misa: So you wouldn't have to have a fully separate computer . . .

Bament: Dedicated mainframe.

Misa: . . . but one mainframe shared.

Bament: I mean, the sort of thing that you're accustomed to seeing. Anyway, in 1984, I moved from Cybernet, and data services, and so on, and took on the role of production manager out at the manufacturing facility in Moorabbin.

Misa: Pardon me, where was that again?

Bament: It's Moorabbin, M-double O-R-A-B-B-I-N. It's a Melbourne suburb. Now that commenced on 30 November 1984, and probably ended in 1986; think it was 1986. I got a phone call from somebody in the U.S. saying look, we'd like to see you in Silicon Valley for a meeting. I went across there on a Tuesday, I think it was. It was for a meeting that I didn't know the purpose of on my way out. In fact, I went into this room of probably eight people, and they'd already been discussing the topic, which was still unknown to me. But I went in and was introduced, then I asked the question what was the purpose of the meeting and was told that the business had been sold. So the floppy disk manufacturing business had been sold to a company called XIDEX; it's with an "X" actually, not a "Z". And really, there was little or no discussion, you know, all pre-decided it was sold. I asked what was the role for us? We were being merged or what was happening? The answer was no, the only people they wanted were the sales group

associated with the manufacturing and so the plant was to close. Now this was, I think, the 8 December or around that time, and in Australia, effectively, January is the height of the holiday season. And my question was when, and they said by “Christmas.” At that stage, I didn’t take that too kindly and we managed to negotiate that 50 percent of the people would go by Christmas and the balance by the end of January. Bearing in mind that we had probably \$4 million worth of floppy disks sitting in a warehouse, so I looked after the logistics part of that as well as running the plant that was employing probably 70-75 people. So it was a significant blow. I flew back into Australia, I think, on a Thursday, so I’d been out of the country like a handful of hours, it seemed like.

Misa: 48 hours, or something.

Bament: Yes. You felt like you bumped into yourself on the way back. Anyway, on the plane coming back, what do you do? You’re put in the situation of telling 70 people you’ve lost your job, prior to Christmas and prospects of getting another job in January are pretty slim because effectively, the country goes on holiday; it’s the holiday period in January. So, a difficult task; but came back and resolved, in main, no more making floppy disks, that was the end, we’d made the last one, effectively. So I went in, got everybody together, said well, I don’t have any good news, but what we’ve got to do is stop making floppy disks as of now, and concentrate on shutting the whole place down, and finding as many jobs from other people as we can. And that’s, in fact, what I did; spent the next six, eight weeks, whatever it was; shutting it all down, selling off the plant, and effectively closing the whole thing.

Misa: That can't have been an easy couple of months for you then.

Bament: Yes. It's not good, it's time to move on, you know. It seemed to be out of character with the way Control Data normally operated in the sense that this was taking an ax to a part of the business that seemed to be functioning very well. We were making money, and at that stage, we were selling 50,000 disks to IBM [each] month. So it was going pretty well.

Misa: The floppy disks were actually done OEM?

Bament: Well, they were sold to 3M, for example. There was a company down here, Imagineering, that at the time was selling into the public arena. We weren't selling directly to anybody, you know, to end users. But our business products were the group responsible for selling the product.

Misa: And so once that finished up, where did you move next?

Bament: I went out and started my own company. I started a company called Leader Technologies, and that company was engaged in integrating monitoring systems in computer rooms. You know the technology changed, in that instrumentation was no longer coming from single companies, you could interface things like data loggers with PCs and create systems to fulfil any role. And that's what we did. And then Tom Kopp

had moved on; and Tom Kopp set up a company called Leading Edge. Leading Edge actually went into the seismic arena and Tom formed a business relationship with a name you may even recognize, Bill French . . .

Misa: Bill French?

Bament: Did you see Bill French at all? I've got a feeling he was a Control Data executive.

Misa: The name is familiar.

Bament: The company was, as I said, Leading Edge and it consisted of two of the world's leading companies in seismic processing and software development. In conjunction with Leading Edge, they established the first seismic processing company in the Southern hemisphere, based on the Cray X-MP.

Misa: Now, the seismic processing, was that connected to oil exploration?

Bament: It was oil and gas. The companies involved in that was Tensor Pacific, T-E-N-S-O-R Pacific. And the then president was Bill French; Dr. Bill French. So I actually set up the computer center for Tom on a consulting basis, and I acted as the center manager for the place. Initially, it was the X-MP, and subsequently it was upgraded to a Y-MP

computer and it was a dual processor machine. That's where Tom went and I worked on a part time basis for him.

Misa: So you did some similar type of design work but then also operations?

Bament: Yes. It was getting the facility together to house the machine. These machines have fairly unique requirements. You don't think of computers. Normally, you think in terms of fans blowing air through to cool the electronics. With the Cray design, the systems out at Knox were directly connected to chilled water, so chilled water is actually pumped through the mainframes to take the heat out. With the XMP, they actually immersed all the electronics in something called fluorinert, F-L-U-O-R-inert, that's it. And that was manufactured . . .

Misa: Artificial blood.

Bament: You know that.

Misa: Yes.

Bament: The 3M Company produced it. It really was a product produced from a formula, in other words, you've got a chemical formula and you know, we could probably make this stuff. It looked like water; clear; it had very unique properties. It has very high dielectric properties so it's a great insulator; it also has high boiling point; and it's totally

inert. It doesn't attack plastics, or paint, or anything else. It's an inert sort of material. However, very difficult to contain. You know, you can't just run it in conventional pipes and fittings because it just weeps through, you know, just works its way through the molecules.

Misa: It actually can move through the plastic.

Bament: Yes.

Misa: What kind of piping did you use?

Bament: It was all provided, obviously, I mean they'd solved the problems of how to contain it. But that was one of the problems with it in the early days, was how to contain it. The X-MP had that as its direct cooling medium, and then it went through a heat exchanger, and then to water, I think; and then you cooled that water. So it was a two or three stage process to take the heat from the electronics out. That was getting pretty high density electronics, at that stage.

Misa: Cray sometimes laughingly called himself an overpaid plumber, because of the need, not only for fast computing, but also to get rid of this tremendous heat. Absent both of those, you have no supercomputer; it melted.

Bament: That's right. We mentioned earlier about the U.S. view of the world. I mean, the early days, all due respect, but Americans viewed the world very much from the American perspective, and the early machines would ship out 120 volt 60 hertz configurations into a world that's 240 volt 50 hertz. So, you know, that mightn't sound like a huge problem, but it actually is.

Misa: Huge problem. [Laughs.]

Bament: Yes, you then have got to have some sort of rotating machinery to convert 240 to 120 – 60 hertz, as opposed to 50, because you know that frequency affects things like motors. Motors are synchronous and they actually run off the frequency.

Misa: Sure. Now, let me understand this detail because it's an important one. The Control Data machines that came out [interrupted] ...

Bament: No, Control Data was somewhat different in that they produced; one of the requirements is obviously DC voltage to power the electronics. So you're talking about five volts but a significant amperage. The way that Control Data solved the problem, they had motor generator sets manufactured by a company called Kato, K-A-T-O, and these produced 400 hertz, 400 cycle voltage that was carried to the mainframe and then simply rectified or transformed to the value you want, and rectified in the mainframe. So that removed that problem of generating the DC through power supplies or whatever it was.

Honeywell had dedicated generators that produced the DC, so you actually had large cables carrying the DC to the mainframes.

Misa: So a separate unit essentially [tapped] into the local current . . .

Bament: Yes, separate.

Misa: . . . transformed that into direct current.

Bament: Direct current and then straight into the mainframes. It just reminded me of the situation I had once in Perth. There's a company called Mayne Nicholas and they were responsible for payroll. They did payroll for companies so they were time sensitive. They had a Honeywell 200 and the power supply went down. They didn't have a spare in Perth; to air freight one across, you know you've got like four-hour flying time, plus getting one to the airport, and so on. The engineer in Perth went out to a battery supply company, filled a utility [truck] with batteries, and literally cobbled together a very large battery.

Misa: To get DC.

Bament: Couple of cables through the window and run the Honeywell 200 to get the pay run through.

Misa: Wow.

Bament: A little anecdote, but it certainly happened.

Misa: In terms of timeliness, it's quicker to get the batteries to get DC.

Bament: That's right. [Laughs.]

Misa: Wouldn't have lasted for two weeks; maybe two hours.

Bament: That's right.

Misa: Richard, any other comments or observations that you'd like to share with us?

Bament: No, I think I've pretty much covered it. You know I've run my own company for about 15 or so years, pretty successfully. So that's been the career. It's been good; it's been rewarding, and I've enjoyed it.

Misa: Could I just ask for any comments you might have on the CDA group and its continued meetings decades after the company, CDA, ceased to exist?

Bament: There certainly is a culture that exists; people are happy to still relate to what must have been very good times in everybody's memory. There was never a feeling that

you weren't part of the family. Trevor Robinson is credited with being the person that created that environment. Obviously people enjoyed working with the company and are still happy to meet periodically and enjoy one another's company. There is certainly a collection of memorabilia that one of the females and her husband look after; there's a collection and it's quite a bit of material held by them. In the history of Control Data Australia, I think the Australian unit performed very well in many sort of different areas. In the data center, we moved into housing other peoples' equipment, so we were actually running computers for other companies.

Misa: This was at Knox?

Bament: Yes. There was certainly one while I was there. Then we had another one coming along. And we were distributors for time division multiplexes for a company out of the U.S. We used quite a lot of TDMs but the technicians were actively selling and maintaining equipment outside of our own gear, so we were at the stage where that could have diversified into another direction. You know really, in a lot of ways we were at the basis of something resembling an internet, although it was a private network it was certainly one of the largest running in Australia at the time.

Misa: We tend to forget that there were many, many computer companies — IBM, DEC, CDC — that had networks that spanned immense geographical spaces.

Bament: Yes.

Misa: We tend to think that the ARPANET was the first network but that's far from true.

Bament: That's right. So, you know, a lot of good things going there, and it's a pity it didn't continue on. I would've happily stayed with Control Data had the situation been slightly different. I think by the time I left, there was obviously some difficulties that we weren't fully aware of that were impacting the business. It was a change of direction; it was a rapidly moving target. And at that stage, I think, as a corporation, we're so large it's very hard to turn it around. It's so much easier to start up a small unit and grab a niche market than try and turn around a very large corporation.

Misa: The personal computing story is a story of small companies. IBM set standards, but that didn't really change IBM itself. They set the standard but they didn't turn that into a commercial success. That was a big challenge for all of the large computer companies; Control Data, everyone right across the board.

Bament: That's right.

Misa: Well, Dick, this has been great. Thank you so much for your time.

Bament: That's good, Tom.