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Interview with John Cooper recorded by Rob Linn on 14th November 2006.

DISK 1

This is an interview with Dr John Cooper on 14th November 2006 at Goodwood, South Australia, for the University of Adelaide Oral History Program, and the interviewer is Rob Linn.

John, you were born in Adelaide in 1928, but I wonder would you tell us a little about your parents, please, and who they were?

My father was a third-generation member of the Cooper family, I guess you can say, and we lived in Tusmore Avenue, Tusmore. I was one of five, five members of the family, three boys, two girls. My father had a business of his own and he built a small factory for making malt extract and continued doing that from I guess it was about 1920ish and from then on.

My mother was one of nine, by name of Kinnish, the family.

Sorry, what was the name?

Kinnish. [K-I-N-N]-I-S-H. I think my grandfather came from the Isle of Man and it's a Manx word.

I was going to say that explains it.

(laughter) That's right. Kinnish, Kewish or something like that, I understand. And where shall we go from there?

And your father's Christian name was John also, is that correct?

Yes, that's right.

They sent you to school at Prince Alfred College, as the family tradition would have it, I suppose.

Well, I actually started off at a local school. It was a partly-open suburb out there at Tusmore in those days, and there was a small private school in the local church, local Presbyterian church, run by one woman who taught you (laughs) by sing-song. But everything went in, you know, up to twelve times table in grade two without turning a hair. (laughs)

Fantastic.

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Yes. And then in third year they sent me to Prince Alfred.

And I think you told me the other day your father had an interesting way of getting you there: he took you there but you found your own way home, is that right?

That's right, yes. I think I was in grade three – haven't worked out the age, but it was the beginning of grade three – and yes, he took me there in the car and I – – –. We used to roam everywhere at that stage and know your way round, but I'd never been down there (laughs) on my own and he dropped me off and he took me in and made sure one of the teachers had me in hand and let them know who I was, but I was given instructions on how to get home, (laughs) which involved walking up from Prince Alfred's up Dequetteville Terrace to the Britannia – no buses in those days; there was a tram coming up Wakefield Street which went on through Marryatville to Burnside, and I dropped off at Tusmore Avenue and walked home. And, not surprisingly, my father was on the veranda reading the paper and watching his watch at the time. But we were expected to do things in those days. Or the boys were, the girls weren't so much, they were looked after pretty closely, but the boys in general got out and did things, yes.

Did you have siblings yourself, John?

Yes, I had two brothers that were younger, one sister older and one younger. So there were five of us altogether.

And, John, what was the scientific education like at PAC at that time?

Well, in the primary school – the preparatory school, as they called it, the 'prep' – I dare say it wasn't much different to anywhere else. I can't really comment. But the teaching in the senior school for the upper classes was very good, they had a very good upper level. But remember it was wartime by the time I got there and there was a terrible shortage of teachers throughout the country, throughout the state, and Prince Alfred's felt this, too. One rung of the teaching was pretty poor and I've heard the same from other schools. It was a very difficult time. But they did have a very strong senior level in the sciences particularly.

I think we mentioned the other day that R.T., Ray, Smith taught you Physics.

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That's right, Ray T. Smith taught us Physics and there was another Smith, Ken Smith, taught us Mathematics. He had been the headmaster of King's College, but he'd got cancer and his time was limited and he wanted to keep on teaching, and he finished up coming to Prince's and was a great asset in the Maths area, as well as a chap called Williams – 'Spanny' Williams, we called him, I can't remember his first name, it was always 'Spanny'. But we were well done by also in Chemistry, Ray Smith and a fellow we called 'Kewpie' Close[?]. We did well with our science teaching.

There wasn't much in the arts line there, though, you know; (laughs) it went by the by – although Ward himself was very strong on the classics, but somehow it didn't get through. I guess this was the problem with finance, too. The schools found it very difficult and they couldn't do everything. They didn't have any foundations behind them, as they often do now.

Now, tell me, John, what decided you to go to the South Australian School of Mines in 1947? What was the rationale behind that?

Well, I guess I wasn't thinking very far. I had always had this idea that I'd follow up with this malt extract business as a business because there was a living in it. It was difficult to get a big salary of any sort in those days, and I thought this was the broadest thing, if you're on your own, I wanted the chemistry side and engineering side to sort of run a factory or make decisions on keeping a factory going. So there was a combine, Industrial Chemistry, which seemed to broadly cover the situation, so that's as far as my thoughts went and I didn't think any further at that stage, which was perhaps a bit silly, but anyhow, that's how it went.

Now, the course of Industrial Chemistry you took at the School of Mines, half of that was actually at the University of Adelaide pretty much.

Yes. The chemistry subjects were done at the University of Adelaide.

Can you describe what the University looked like in those years, in that part of it?

It was very open, of course, there was only about half the number of buildings that there are now. It looked like a sandstone university, it had that look, with the Art Gallery next door and the main School of Mines building, the Brookman Building, was there of course at the corner of Frome Road and North Terrace, and behind it was the newly-built Bonython Engineering Laboratories, and that stood out in red

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brick amongst the rest of it. And not so obvious was the Medical School, the old Medical School on the other side of Frome Road; that just looked like part of the hospital.

So where were your main lectures for Chemistry at the Uni – in the Kerr Grant Theatre?

No, down on Victoria Drive, the Johnson Laboratories. Actually, there was a huge overflow of students and we did our first-year Organic Chemistry lectures in the back of the Brookman Building. The place was overrun with CRTS¹ students, people a few years older than us and highly-experienced in the world, (laughs) and there was a bit of a change for us to have us young fellows and then step up to men of the world.

Did you find it a very interesting time to be there, with study?

Oh, yes, it was. It was a big change from school and I do recall lecturers in both institutes were very much alive and aware of things. Things were starting to change, knowledge was coming out that had been held back during the War and there was this rivalry between the School of Mines and the University at first and second-year levels, where they both taught almost parallel subjects, in Engineering particularly, and each one trying to be as good as the other and particularly the School of Mines people liked to think that they were the equal of the University teachers. In fact, at their first-year level in Mathematics they made it harder, they made the students do an extra lecture a week, and they lectured for several weeks longer than the University did and they kept piling the stuff in, too. (laughs) It was much harder to pass their exams than the University.

I've heard that from others, too.

Yes.

Can you recall any of the University lecturers of that era who would have taken you for Chemistry?

The Organic Chemistry one I do remember, Dougal Slee, at the School of Mines. He was actually a schoolteacher, I think, originally and had got this job. He was a good schoolteacher and they appointed him to this job, and he was very, very good. Now,

¹ CRTS – Commonwealth Reconstruction Training Scheme.

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first-year Chemistry, gee whiz. Dr Cooke in first year. I attended the engineers' Chemistry classes, that's where we were led into for first year inorganic work, old Dr Cooke. He was as dry as an old boot. (laughter)

Second year, give me a moment. Roger – oh, he went on to Leeds – Irving, I think it was, Roger Irving. He was a young chap and he was the first to teach the electronic configurations of the units here in Adelaide of the elements, orbits and orbital sort of business, and – – –. Another Geology staff member my age came from Brisbane and when I told him we'd done this work in second year he was absolutely amazed. (laughter)

Lecturers again, and I was trying to think of one, Nossal, he was the younger brother of –

Of Gustav?

– of Gustav. He taught me second year Organic Chemistry.

Is that right?

Yes.

I knew he was there, but really?

He died young, I think he had some sort of, I guess it was some sort of leukaemia. He used to be always a bit pale, but within he had driving energy. He was a good lecturer. I can't think of his first name. But he was the brother of the other Nossal.

So, John, was there also a social life around the School of Mines and the University in those years?

The School of Mines didn't have the same sort of time to spare that – most of the students were part-timers and so they were doing the course in their spare time with that sort of a set-up there. And I played football, I played football for the University, even though I was basically a School of Mines-registered student they accepted the School of Mines people as third-year students and they could play sport. You had to join the University Union.

Of course. So being part of the Union you would have played footy, what, on the main University Oval?

Yes. With the University teams, trained with the University teams. Yes, that's right.

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And that would have been amateur league, I suppose?

Amateur league, yes, indeed. I was Secretary of the Uni Football Club one year and I think we had five teams and had to find grounds for them, had to register them all and find grounds for them to play on and it was quite a business.

That's a lot of teams.

Yes.

A lot of people, just for footy.

Five in amateur league. (laughs) Well, not many people played hockey and lacrosse – a few did – and those sort of games; most of them tended to go into football if they were going to play a winter sport.

John, you said to me that you really enjoyed your time studying, if one can enjoy it.

Oh, yes. I'd had it rammed into me by my dad that if you don't want to work with your hands, learn as much as you can and do it now because you won't have a chance later on. My working hours have decreased a bit since then and (laughs) as I told you before I worked the system a bit in later years.

Now, the course at the School of Mines had a more practical orientation, didn't it?

Yes. Oh, yes. The practical classes were quite extensive and also they were overseen quite well, whereas at uni they'd give you something to do and leave you for the day. That's in the Organic classes particularly, they'd give you something to prepare, which might be a five-hour job, and if something went wrong on the way (laughs) and you'd check the yield of what you're supposed to get and find you'd got something else the bloke looking after you would say, 'Ah, well, you oxidised the thing in the air.' (laughs) And then it was your fault that the air got in, and no instruction about putting it in a sealed container or something like that. Well, that's the way it worked in those days, and they were pushed, too. But I think it would be fair to say that the School of Mines teaching staff had the attitude of school teachers and this is one direction where I think it was good, they made sure that things ran a bit better.

Now, your first job when you came out of the School of Mines was with the South Australian Department of Chemistry, is that right?

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That's right, yes.

And that was situated just off Kintore Avenue, am I right in that?

Yes, on Kintore Avenue in what is that place there now?

The Migration Museum?

Migration Museum. It used to be a home for destitute women in its early days, that's when it was built.

A destitute asylum, it was indeed.

'Asylum', did they call it? Oh, well, I think (laughs) it was probably the fact that they were destitute rather than mental. But anyhow, that was a very solid place and the cells, they had cells there, when I was there one of the staff members was so-called a 'chief inspector of explosives' for the State, the Government representative on the safety of explosives, and they used to keep any explosive they had on the campus they kept in the cells that they used to lock these unfortunates up in.

But, John, you said to me the other day that that was a very interesting time, working with Alan Hickinbotham senior there and some of the problems he set you.

Yes. No, he was good. I did work with one other fellow to begin with, but Hick stood out afterwards, that he inspired you a bit. If you had a bit of a problem he'd sort of come along, (drawls) 'What's going on here?' (normal voice) And he spoke like that, (drawls) had that sort of way of talking. (laughs, normal voice) And then he'd say, 'Well, why don't you try this', 'try that'. He'd encourage you. He was a very friendly man and he would encourage you, and he was all ready for a joke, too.

Now, John, as an aside to this, it seems to me almost from your birth you were interested in geology through your father's interest, so would you like to tell us a bit about how that came about?

My father's background, he got – unstable is not the word, but he got itchy feet, I guess, when he was home and he wanted to get out and see if he couldn't make his way in the world. And there was a mining boom on at the time and he headed north and got a job with the mining companies. He found that it wasn't easy going, very hard work, but he worked in the Blinman Mine. Copper was the thing up that way, Blinman Mine up north, and Yudnamutana Mine near Arkaroola, which is known

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these days as Reg Sprigg country. (laughs) But he was settled down here when I began to understand things that were going on, but he'd still go out on weekends, fossicking around the Adelaide Hills, and have an offsider. He perhaps might camp out at a certain place they got interested in, and he was always picking up specimens and looking at them, and he had the equipment to make on-the-spot analysis of certain elements, which was useful for what he wanted.

So did he take a little chemical laboratory with him, did he?

Well, it was just a little packet. It included a blowpipe and the sort of things that Mawson carried with him, I think it was probably what he set up, what Mawson put together, and hand lens and scratching tools, the same as the sort of thing they had in the classes at first-year level. But I thought the unique thing was the blowpipe and the little candle and carbon block, where you could melt a spot of what you had and get colours and so forth to guide you.

Did your father ever take you on those trips?

Only the weekend ones.

Yes. Oh, not to Blinman, no.

No, no. The local weekend ones that he went out on, yes, he did. And I used to get a bit bored, actually. I was very little then. How old was I? I was about grade four or something like that and it was a bit early for me to catch on. I learnt a few names and could recognise a few specimens, but it was just a bit early for me to go any further than understand the looks of things.

When do think that geology sort of hit you between the eyes? When would that have occurred?

That was when I went to the ANU, really. But prior to that I was in Broken Hill, acting as a chemist, and we saw things that came up from underground. But there were geologists up there who were quite separate, people worked in separate groups, and geologists were working very hard at that time trying to find new ore bodies, the future of Broken Hill was beginning to look a little bit bleak just then also. But they kept you very, very busy in the chemistry laboratories and when five o'clock came you (laughs) left. And we rarely saw the geologists. They were on another part of the campus and that's the way it worked.

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No, but getting back to your original question it was when I went to Canberra when I came across the research side of what was going on in geology and the processes involved were emphasised, and that really struck me as being very interesting and has ever since.

Before we come back to that in a minute –

I jumped things a bit.

– no, that's fine, John – I'd love to talk about Broken Hill because 1955 I think it was you went there, would that be right?

Yes, that'd be about right.

Now, that analytical position you took up would have – now, that was Broken Hill South?

Yes.

You would really have had a fair bit of work in front of you at that time.

Oh, yes. They kept you busy, very busy. I can remember one day – you'd have an offsider to help you, but you'd weigh out your samples yourself and to perhaps finish up with, after some manipulation, finish up with a titration – that was running a liquid in and measuring how much we needed to neutralise what you had. And anyhow, one day I did a hundred and eighteen such analyses.

How many?

A hundred and eighteen.

In one day?

In one day. I weighed out a hundred and eighteen – well, it was the sort of routine where you had a range of different sorts of samples, some which you had to be extremely careful with to get accurate results, and others were just samples from the operating mill that they had to keep track of how the mill was working. We only needed an approximate answer for them so you'd weigh them out – 'Almost. Well, that's near enough', throw it into the beaker. And when you're titrating it, you zipped along fast and if you overshot a bit it didn't matter, and so you had this routine; and those in between where you had to be more careful but it wasn't *that* essential; and then the concentrates which had monetary value, high monetary value,

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you'd be extremely careful. But it was a lot of work. I didn't do that every day, that was one day, that's a day I remembered. (laughs)

That's an awful lot of analyses.

Yes. Well, on my previous job that would have taken a month or so.

Was it a job where you learnt to be both quick and accurate, would that be fair?

Yes, that's right; and also sort out knowing, when the sample comes along, say, 'That's an underground sample', as they called it, a sample of a bit of rock that's been knocked off.' An approximate answer was required if it was an underground sample, but the others, as I pointed out, mattered more – mattered a lot when it was a so-called 'shipping sample', which is a sample, very carefully taken sample, so that it was representative of a whole truckload heading off on the railway line, they'd gone to a lot of trouble to quarter and quarter and quarter and get this representative sample. Well, we'd then take a little bit of that and have to get the closest possible analysis.

Now, you said that the fire assay – this is something I was really interested in –

For silver.

– was for silver.

Silver was the thing. Lead, zinc and silver were the elements that they got paid on and there was always a little bit of gold in with the silver, but not much at this stage, the stage the mine was at. So the silver analysis, as you said, was by fire analysis and here the silver was extracted from the big sample of ore by melting it down with litharge and you finished up with a lead button about the size of your fingernail on the end of your thumb and that was then taken and put in a furnace at a certain temperature and the lead was slowly evaporated away, and some of it went into the container, a special container was put in and you finished up with a silver prill, so-called prill, which you would then weigh and get the silver content. But much depended on the temperature of this fire, this furnace, as to whether the silver content would be a little higher or a little lower in the process. You do lose a little bit with all that lead that went off, but most of it's left behind and you could adjust just how much you did finish up by adjusting the temperature of a furnace.

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But it was interesting that the control of the furnace was done by eye, the temperature of the furnace was done by eye, and you'd think it would be an impossible thing to do, get it very accurately by just looking through a peephole at this interior of the furnace, but these things were set up in a fairly darkened room and it so happened that with the course of time, after a few weeks you could reproduce the same sort of temperatures and same sort of analyses results quite accurately.

John, you said that there was a fairly active social life there as well at Broken Hill, but I don't know whether it was the temperature or what it was at Broken Hill that led you to apply for the job at ANU.

Well, the temperature didn't worry us. My wife didn't worry with the heat; she was very comfortable with it, actually. And it didn't worry me too much. But after two years of this very routine life, this is really the thing that made me look around for something else. I'd always hoped for something that had a little more interest than a routine business, went looking for another position, and one that came up in the newspapers was this requirement in a radio chemistry laboratory in Canberra. I didn't know what radio chemistry was then, so I made application for it.

Now, radio chemistry at the time would have been a relatively new field of study, would that be correct?

Yes. It was really the use of radioactive elements as traces in all sorts of chemical processes, and everyone thought it was – there was a feeling that it was going to be a big thing and take over from lots of other procedures, and actually it didn't turn out quite that way because people became more aware of the radioactive nature and not wanting to have it around all over the place, and just keep it for specialised labs where it could be controlled a lot easier. And other things came along, of course, as lots and lots of new works were going on at that time, and it didn't become an absolute necessity to use it, so it would just be put on side for specialist jobs.

Actually, I'd forgotten about that, because that material was used in X-rays and I can remember there was a great interest around that period in doctors being far more careful with the radioactivity of X-rays too, not exposing themselves.

Yes, yes. Well, many people had burnt fingers and so on with X-ray equipment, that's a slightly different approach. The radioactivity I'm talking about would be atoms of it in solution or in solid situation where you could use it in chemistry, whereas the X-rays coming from a machine – yes, there was at that stage an

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expansion of the use of X-rays and the protection for the operators and the patients was just a secondary thought for a while and that suddenly became very important when it was realised that it wasn't so good for us to be hit upon by X-rays.

John, given that you were working in radio chemistry – and I know that time in Canberra was a time of great expansion, both at the University and in the city – what led you to go from radio chemistry into studying geology? It seems like a most unusual move.

(laughs) Well, the radio chemistry that was evolving through a decision to concentrate or make a push on the radioactive dating of rocks and minerals and radioactive dating decay schemes of the elements already present in the rocks, like uranium, thorium, potassium decaying to argon and rubidium decaying to strontium. They got the bright idea that if conditions were right we could use these decay schemes, which are steady and constant – over time, the rate of decay is a constant – make use of this to create a clock or clocks to determine the age of the rocks. And this is where the big push of radio chemistry finished up going, and that's the only aspect of it that I ever did work on, was in the dating of rocks, and so I got closer and closer to geology.

But what gave me the impetus to go into this was the beginning of the general studies, the undergraduate teaching at ANU, where a science faculty, in this expansion, a science faculty was founded and the teaching of chemistry, physics, geology, botany and zoology commenced and it seemed sensible to get a bit more geology behind me if I was going to go ahead with the work that I was doing, and it was encouraged within the university and the new faculties were dying for new students so the path was, if you wanted to do some more work, the path was there to start. (laughs) I was in the right place at the right time.

It sounds like it.

Yes.

So in fact you did – was it over four years you did your degree?

Yes, yes, to get the degree at ANU you had to do half of your course in that university, otherwise they wouldn't give you the degree. So they checked up on my previous work and said, 'Oh, that's acceptable', and so I started off. I decided it was a good idea to do things in runs and I'd done Geology I so I went through Geology

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II, Geology III there, and then I had a bit of chemistry to clean up: third-year Physical and Inorganic Chemistry, and that was hard work. But I got there. (laughs)

Why was it such hard work, John?

I hadn't done chemistry studies for fourteen years, Chemistry II studies fourteen years before, and of course it had all changed and so on. Yes, it was ---. And I'd four children at that stage – family had continued to grow – and time was at a premium.

So it's pretty helpful that the university actually supported you to do it.

Oh, yes, yes. They allowed the time off to do it without reduction of salary and yes, I was very fortunate. Salaries at ANU for apart from academic staff were pretty tight. They inherited the British system, I think, (laughs) where things were pretty tough. Well, it was; the people who came had been a long time in the British system and they didn't overpay people, as we all know.

So, John, given you with your four children you couldn't take honours, as I recall it, because you weren't allowed to do that part-time; but they allowed you to do the master's part-time, which I thought was incredible.

Yes, well, that's right. Well, it's the same here. You have to do honours as a full-time course. And you could always do master's as a part-time, you might do it over many years. It was something the University seemed to have kept open so that they wouldn't lose a prospective student, and I think it was a good – it was just the fact that it was done through the master's structure that it was fortunate again for me to run into.

Now, was it during the master's research that you stumbled on something that caused your head of department to view you in favourable eyes?

Oh, yes. (laughs) I did have a bit of luck. There was a problem with the work I was doing, which was just straight chemical analysis but very important for potassium–argon dating, and I had the responsibility for doing the potassium analyses and it turned out that there were interferences from other elements in this sort of work. They were using flame photometric procedures, and everyone else in the world, of which there were many at the time, doing this sort of work followed those; but it turned out that, cutting a long story short, the other elements in the materials measured were causing interferences which were giving the wrong answers, we

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finished up with wrong geological ages with it, and it made such a difference that it made a nonsense of the geology that came out of it all. I was fortunate enough to be able to see a way through to neutralise those problems and race ahead and get well ahead on other people at the time. That was soon overcome, though, in this fast-moving world; but I had my hour of sunshine. (laughter) And, as you said, it paid off, it gave me opportunities afterwards.

So was it that, perhaps, that allowed you to apply for a PhD scholarship, do you think?

Yes. Well, I applied under my own belt, but I'm sure it made a big difference when head of department was a very strong man and what he said went, and he was pleased with what had been done and said. He did ask me if didn't I think at this time of my life (laughs) I should get out and enjoy the good life. And I said, 'I'd rather prefer to do this now at the moment.' He said, 'All right, if you want to.' Another slice of luck.

And you didn't have to move particularly far.

No. It was interesting that I hadn't, whilst I was working part-time, I was still in the same seat in the department and when I became a PhD student I still stayed in the same seat. And likewise with the next step.

Yes. Now, the next step after this is something that amazed me, that – is it Roy Rutland?

My next step was a year with the Bureau of Mineral Resources –

That's right, that's right.

– as a geochronologist.

Yes, that's right, I missed that in thinking about that.

Yes.

But in one way you were checked out by the University of Adelaide and you'd got wind of this and written to the head of department there?

I'd heard they were considering doing geochronology, setting up geochronology here, and I also heard Rutland was coming to Canberra for some meeting and I made contact with him. I can't remember just how. But he said he'd be coming over early

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because he wanted to see some equipment that was in the Geology Department, and so I told him I'll pick him up from wherever he was and see that he could get there and see it. And a friend of mine who was lecturing in the Geology Department and who incidentally came from Adelaide, Professor Alan White as he is now, he arranged on the weekend on Saturday morning to open the place up so that Professor Rutland could see what he wanted to see.

Well, that must have been a bit of a help.

Yes. (laughs) Oh yes, he had a look at me, too, and the family and so forth, so of all the applicants who came along later on I was one that he'd seen.

So, John, you and your family arrive in Adelaide in 1971 after successfully applying for a job that you'd almost had an interview for before you knew you'd had an interview for it.

That's right. (laughter)

But can you describe what the Mawson Building was like in 1971, when you arrived, and the feel of the department there?

It was very, very busy. It was a time in the latter part of a mining boom and the number of Geology students at any one time depended on the mining industry, it really did, and when there was a burst in the mining activity – and things did happen with a great rush, it's just the nature of the thing – there was a great interest in the community and lots of fellows signed up for Geology. And I landed right in the middle of one of these when they were up to their ears, and I set about trying to do my business in the middle of all that. I really, looking back, should have done more to help with the situation, but – – –.

Were there strong links between the mining industry and the Department in Adelaide?

Not as close as there are now. But at that point – we're still talking about that point? –

Yes, we are.

– the staff were absolutely flat-out with their teaching and attempting to do research programs, and they were doing some research programs, yes; but the pressure was on the teaching and the marking, because of the number of students. And, as I was

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saying, it was towards the end of a boom, but this is when the student numbers were at their highest, and then the boom collapsed and the students had to pass through and very few – let me put it this way: that the numbers that enrolled after were much smaller. But everything was a few years behind the peak of the booms and in five years' time we'd entered a trough once more and it was smaller numbers of students.

John, your move to Adelaide also coincided with the probably peak year of the Whitlam Government?

Yes.

So was there a fair amount of money floating around the University at that time?

Well, yes and no. I think if you looked either side of it they were good years. Well, the students had scholarships and things. Undergraduate students didn't have to pay fees and there were lots of scholarships for postgraduate students, higher-degree students. In that sense there was a lot of money. There were still battles between the departments within the faculties to try and get more money and improve their departments and the pressure was on to enter the new world and get research equipment, lots of research equipment, which is something they would never have got out of Mr Edgeloe. (laughs) And so on. And Commonwealth money had come in. But I find it a little difficult to weigh up the degree of that, because I wasn't there in the few years before. But it seemed to me from what the other staff members told me that they had practically nothing in those years before the Whitlam money started to fly around.

Can you compare it in any way with ANU, John, with the student response to that era? Because, as I understand it, it was a time when students were pushing for departmental democracy and there was a fair bit of activity, I suppose you'd call it in a nice way, going on?

Yes, there was an awful lot of activity. The higher-degree students, of which there were a lot at the time – there were a lot, they were a sizeable proportion of the population – within the University, within the Geology Department, they had their own little group. They called it AUGS – Adelaide University Geological Society – their own, and they used to run cricket matches and meetings and Friday afternoon grogs. (laughter) They were very active; and in Rutland's time he let them run the

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whole thing, which meant we didn't have to. But some of them were pretty wild, there's no doubt about it, they'd get up to all sorts of pranks.

And you had to teach these students.

Yes. Well, supervise them when they'd got to the higher degree stage.

So was your initial task more fitting out the laboratory and getting all that done?

Well, there hadn't been any geochronology work or trace element work done there before, and for geochronology you have to have a clean laboratory and chemical laboratory where we could do the chemical separations of the things involved, and that had to be planned and set up. And also another machine was required, a machine called a mass spectrometer, which was the key to isotopic studies which were necessary for geological dating. And we had to seek out and purchase one of those, and the money available made it rather difficult, but still we managed to get one that, after a few modifications, would do the job for the next ten years quite happily. But it took a bit of work to get it up to scratch.

Gosh, I bet it did. Now, can you talk a little bit about some of the other people that you were teaching there with at the time? What was Professor Rutland like as a person and to work with, John?

He had a big job and he was very quick in understanding, which was his asset, and he was a great debater and he could always – (laughs) he had a way with him, he could get someone into a room that he disagreed with and wanted to come to some decision over an item and he could get this guy in there agreeing with everything that this chap wanted but send him out of the room agreeing to do what *he* wanted. (laughs) And so it was – I heard later on, when he went to the Bureau of Mineral Resources, that a lot of people just couldn't work out what had happened to them, because he had this technique. He'd be very friendly; unless the person was doing something that was outrageous, he was very friendly and had a lot of energy to do this.

Goodness. But a great persuader.

A *great* persuader – oh, yes, indeed.

So who were some of the others in the Department and what were their research interests, can you remember?

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In the Department, yes. Well, soon after I got there Rutland introduced a deputy head, and John Jones was the chap he took for that. He was two years younger than me, actually, but he was a mineragrapher and one of his interests was opal, he did a lot of work on opal. Also he used X-ray work for his mineralogy. And he did a lot of the early work on trying to work out why asbestos was so dangerous and was the first to push that it must be the micro size of the crystals whereby it slipped in the pores of the skin and stuck there.

And Alfred Kleeman had been there, he was one of Mawson's staff, had been there for a long time. He unfortunately had oncoming Parkinson's Disease and I couldn't understand why his condition – because I'd heard of him as being a highly-active gentleman, but he'd slowed down so fast I wondered what it was, and then it came it was Parkinson's Disease. But he was a very fastidious reader, I don't know anyone who kept up with the range of literature like he did, and he didn't do much research but his students got the latest off the world platform and a lot of his students got on very well in the world.

That was at a time when it wasn't so easy to access that material, either.

Yes. Although the Barr Smith Library had had a big push about that time and they –
--.

Probably Poseidon money, John.

I don't know whether the Library did get much of that. The Mineral Foundation got a two million dollar building out at Glenside, which is worth an awful lot more than that now. Eric Rudd, the just-retired Professor for Economic Geology, he was still round the place but he'd just retired; and Professor Glasner was there, the palaeontologist, he came from Europe, one of those that had to leave in wartime, pre-wartime days, and he was a big asset to the Department for the breadth of his reading also. Unusual man –

Eric?

– no, I'm talking about Glasner at the moment.

Oh, Glasner, sorry. No, Eric Rudd was previous. So was Glasner a professor?

Yes, yes. He also had a doctorate in law.

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Now, that's what I remember about him. Yes, he did.

Yes, a doctorate in law. And when he retired – he had to retire at retiring age, the way it was at that point – and the uni superannuation at that stage was in a very shocking state and he just went away and asked if he could be any help in the legal area, and when they found out his qualifications he immediately finished up sitting in on court cases. (laughs) So there you are; it's nice to have another string to your bow, but what a string!

So it was a pretty active department you came into, John.

Yes, yes. Brian Daily, a great field man.

Yes, he was.

Brian Daily. And, let me see, Brian McGarren[?], another palaeontologist. He actually went away to the Mines Department, replaced Glasner when he left. Bob Nesmith[?] was a very young geochemist who Arthur Alderman took on at the beginning of when Alderman began, took him on straight from his PhD. Apparently he had a brilliant career as an undergraduate at the time, Bob Nesmith. Ross Botha[?] just replaced – not Eric Rudd; the other chap who was in Economic Geology, what's his name? Whittle. And so Ross Botha was new in Economic Geology. There were others there, too. I could look in my book and give you – – –.

That's wonderful, thank you, John, that gives a very clear picture of what was really quite a large department at that point.

Yes. It grew to eighteen in the time I was there. There were more than what I mentioned, but I don't know why – – –.

Now, one thing I'm interested in, John, was there still, if you like, a Mawson tradition around the place? Were there still stories hanging around or was he still revered? How did people talk about him in those times?

Well, he had gone but there were Mawson stories all over the place. I'd started hearing Mawson stories when I was in Canberra.

Had you?

Yes, because the petrologist who was teaching in the general studies where I did my geology was Alan White, who was one of Mawson's students, (laughs) Mawson's last honours student, I think – he claims to be. And he was full of stories, he had

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them all. And we put a few of them in that book that I told you about. There's a chapter on such things.

The anecdotal side of the Department.

Anecdotes, that's right. Yes.

I can remember even as an undergraduate in arts that we had all sorts of strange stories coming out of the Geology Department.

(laughs) Ah, well, yes. And that was well after he'd left, wasn't it?

Well, well after he'd *died*.

Well after he died, yes.

So that's nearly twenty years after he left.

Yes, yes, the stories still go on. I'm glad we put as many as we could into the book, because things were beginning to fade and Stewart was right, it was time to get all this stuff down ---.

Yes, now, we'll come to that later, too, about how all this came about. But what I was getting at was were you aware of that tradition in the Department, if you like?

Yes. I knew that before I came to the Department from Canberra. It became clear that -- because there was just Mawson, Madigan and one or two others at the time, and relieving people and that was it. And everything that happened, Mawson used to take them on field trips. The way he worked field trips was he had a big car himself, a Dodge or something, and he wanted to do field work, say, in the Flinders Ranges. And the third years' field excursion would be this trip up there and he'd get them to map some of the area that he was working his project on, so he'd get manpower, and they would learn the mapping procedures in the process.

He also had some sort of interest in the forests at Kuitpo down here --

That was a personal interest he had down there.

-- yes; but he took students down there for mapping classes and give them a chunk of land to survey. They did surveying in those days too, which has dropped out completely. And they'd do their surveying work there and if there weren't any rocks to see that was too bad; but they'd do their surveying anyhow. But in the Flinders they did both.

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I've seen some very early photographs – in the 1920s I think it was or '30s of students with Mawson in the Flinders, so he was obviously into that right from the beginning of his career.

Yes. When he came here apparently – put it this way: geologists in those days did mainly field work and what they'd do, they'd pick on an area which they thought would be interesting and then they'd start the field work, which takes time to work over, and they'd build up their story of the geology in their patch. And that became their patch. And when Mawson came here he found that the patches here were pretty well taken up; so he first went to an area west of Broken Hill –

Yes, that's right.

– and used Broken Hill as the base, and that's where he met his wife, the mine manager's daughter. (laughs)

Exactly, exactly.

And so he got outback in what we call the Olary Block now and did a lot of work there, and then he moved over to the Flinders afterwards – the *Northern* Flinders, not just the Southern Flinders.

Now, John, Mawson himself was a student of Edgeworth David in Sydney, I think, wasn't he?

Yes.

And in Adelaide there was, in the early twentieth century, there was the indomitable Walter Howchin. Was that sense of history still part of the Department's makeup when you joined it? I mean, did they know about those people, or was it really at that stage pretty much forgotten?

Well, Howchin wrote a book which was the standard for South Australia for quite a long time.

Well, that helps.

Yes. Well, this was starting to slip aside now. But Howchin fitted in very well. He wanted to do as much – as far as I can see, he wanted to do as much geology as he could. But he was a church minister and that was his major job. But on top of that he was President of the Royal Society –

He was.

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– of South Australia for decades.

Over three decades, I'm pretty sure that I'm right on that.

Yes. That was his spare time work. But Mawson wanted to go away a lot, so Howchin just fitted in. Really. And he didn't think twice about Mawson going to World War I and he actually joined the British Army, and I'm told he did that – he didn't do any Australian Army – because he got a salary in the British Army (laughs) and a pension, of a scale that he couldn't get here.

Well, it's also rumoured that he was actually actively involved in intelligence.

Well, he might have been, too, yes.

Which might have made the salary even more attractive.

Even more attractive. (laughs) Yes. Well, I don't know everything, and you know bits here and there, Rob.

I'll just create a new session on the recording.

END OF DISK 1: DISK 2

This is the second session of an interview with John Cooper on 14th November 2006 for the University of Adelaide Oral History, interviewer Rob Linn.

John, we were talking about some of the people you taught with in the Department and I wonder if we could move towards how the publication *Records and reminiscences* came to be. You told me that at the time you yourself didn't have a tremendously strong interest in history, it was after you'd retired, but that Stewart Greenhalgh really suggested strongly to you that it was a good project.

Yes. Stewart made it felt throughout the Department that we needed to do something like this, the Department needed to, because in a very short period of time there wouldn't be anyone to be able to contribute to the earlier years. And so everyone – well, nobody said no, (laughs) and the thing was to find an editor to make this thing cohesive, and different ones were suggested to send in what they thought might be suitable. Anyhow, Rowl Twidale was convinced he could make a good editor, and he started off by receiving things that came in; but after about two, maybe three years – two years, I guess – he put together what he had, which wasn't too much, and said he'd done what he could and made a couple of other suggestions we would follow on and left it at that. And Stuart accepted, decided to accept the situation, and he went

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looking for another editor and he found that I wasn't doing anything apart from work of my own immediate interest, and he convinced me (laughs) that perhaps I could do this. And I said, 'Okay, I'll do it, Stewart', and it took my life for about eight months.

The first thing was – this was early in the year; let's see, how did this go? No, it was in the middle of the year, and at that stage they were holding the annual presentation commemorations in the middle of the year, and Stewart said he'd like to have it be done by the commemoration. And I said, 'Oh, that's all right, that gives me nearly a year. I think I could probably be able to do it.' And a couple of weeks later he came in talking about some details and said, 'By the way, they've just changed things so the commemoration's going to be in December.' So away we went. And it was a very hectic time.

He helped enormously by applying the blowtorch to those who were going to and where there were gaps singling out people and saying, 'Well, I expect you to do this section and that section', and that made a big difference. Things came in, started to come in bit by bit, and I was able to do research and chase up the records in the tables that are in the back here of – I think it shows pretty clearly nearly all the people who were involved over this time in some sort of order where you can sort it out. And also the things that I wrote, which were gaps in the general run of the book.

One thing I did do with David Boyd was the history of the buildings. Stewart was very keen on this. And what got interesting was the movement of the Geology Department over the campus with time and the reasons why, and some of the problems with the building of a Mawson Laboratories building and so on. Broken Hill connection, I did that with Lee Parkin, under 'The Mawson Era'.

Didn't you tell me that when they were doing the Mawson Building they ran out of money at the end of it?

Oh, they ran out of money all right, indeed, indeed. And the very thing, the money had all gone and they realised they hadn't got any floor coverings, (laughs) for the whole building, and what was done was the malthoid material that was to be an insulator of some sort in the ceiling finished up being the floor layering, and thus it stayed for twenty years. That was in the 1930s; thirty years – when I visited the

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Department in the late '60s the stuff was still there. (laughs) But that's one thing that Rutland managed to fix fairly soon after his arrival, which was good.

So the way the book itself was put together was not just by the Department, was it? I mean, you were the compiler, but you brought outside people in where necessary, is that right?

Well, they're all people in the Department, staff members. Staff members wrote virtually all of them. I had got in touch with a fellow who was in Cambridge, Graham Chinner, a student back in Mawson's time, and he helped with history of Paul Hosfield[?], which I didn't have any information on; and actually I've since found out that one or two people here did, but I just couldn't get it out of them, I didn't know they had it. So anyhow, things like that. The whole staff, virtually all of them. The geophysics side was done by David Boyd and Stewart Greenhalgh. Peter Brooker was brought in to start Mathematical Geology, and he was there for twenty-five years as such; well, he wrote the history of that. I got the people who were involved, or Stewart did some of them and I got some of them. And episode – well, first of all in the book we've listed the chapters in some geological terms like 'The Mawson Era': 'Tate's Beginning', '..... follow on', 'The Mawson Era', 'Rudd and Economic Geology', 'The Alderman epoch', 'Glasner, earth and history', 'The Rutland period', 'Geophysics and Boyd'. Then, with the loss of – oh, 'Economic Geology' – with the loss of the Geology chair, 'Jones carries on' is the next major heading, then 'The F..... episode' and so on. But 'The 1989 to 1987 stage', 'Greenhalgh and the chair' and 'Student activities'. And a few extra ones that came along and didn't actually fit into that structure, came along late.

Demonstrators were very important in the teaching of the Department. Well, they've gone now, that's completely wiped out and no money for a demonstrator. But they did a lot to train these huge numbers of students that went through at different times, extremely valuable work that they did and helped create good geologists.

John, did you find it a fascinating project to be involved with? I know it involved an enormous amount of effort.

Once it got going, yes, I felt there was something, that there was a block of time that we could do a lot in, and I had the key headings like I just read out, the names of the

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chapters; and from then on it was filling in. And someone would come along with something else – for instance, Maud McBriar –

Oh, yes.

– a senior demonstrator there who put her life into the protection of Hallett Cove as a geological monument.

I know Maud, or remember Maud, well.

Working on that. Well, she wrote the history of that, and I don't think you'll find it anywhere else as complete as it is here. Let's see, what else?

So your task was effectively to jolly these people on to help them finish the task, and then to put it all together?

That's right. And students had this paper they used to print once a year, called *Rocks*, a newsletter thing, and there was a heap of material in that, the funny things that took place on field excursions and were all beautifully exaggerated and written up there: well, I've just transferred a lot of that stuff straight into here, in the raw form. Those guys could write, too. (laughter) It was good. Enjoyed it. And then there was, during Rutland's time, a student called Gary Jurevics[?] got washed away on a field excursion by a rogue wave at Port Lincoln, and half a dozen of them at least were swamped by this thing and this one fellow got carried away, and that was very sad. I was overseas when it happened, just a day, couple of days before I arrived home.

John, looking back over the – obviously the time you first knew the University as a student's a bit different; but from when you came in 1971 to the present, what are the largest changes to the Geology Department, do you think?

Number of staff. When I was there I'd say there was Mawson – when I was a student, and I'll get this quite right: up till 1932, Mawson and Madigan and Howchin, Howchin in the first part, and he was helped out by a couple of visitors, Stillwell and Benson, who were great names in geological history in the early 1900s. And Kleeman in 1939 became a third member of department: Mawson, Madigan, Kleeman; Alderman. Dallwitz[?] was in for a couple of years in '41–42 during the War when Madigan went away – ah yes, he filled in for Madigan. And then from 1949 there's five and another one, six, '39. In the 1950s there are six – oh, there are more here than I would have expected. Rudd came in in 1950 and Robin Oliver –

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Ah, yes.

– who came in in 1957 and ran through right till 1985. But you see up here it grew up to be about eighteen for a while.

And has it dropped back in the present era? Yes, it has, hasn't it?

Yes, it has. Well, for instance, the technical officer support, professional officers have all gone and there were quite a few of those. And the demonstrators have all gone, and just whipping through here, McGarren is not there – no; something else happened in 1994. Allan Pring, a high-class mineralogist, came to work in the Adelaide Museum, and he's interacted with the Department all along and has taught the Mineralogy ever since then. He had thought of perhaps transferring to the Geology Department, but he in the end decided to stay where he was. It was probably a good decision because of what was happening, everything was changing so rapidly, he wouldn't know where he was.

Geophysics has been a big thing, has gone ahead.

And you were saying, too, earlier that there's now a stronger relationship with the mining industry as a whole, would that be right?

Yes, there is, indeed. And with the Mines Department, or PIRSA as they now call them, there's much more research interaction with them, whereas we tended to be rivals, that's how it was when I came here and it continued that way. But fortunately it's come about there's a lot of interaction. It works out very well because they've got field work to do and they want help, and they're pleased as punch nowadays to get an honours or higher-degree student concentrating on an area or a problem in South Australia, and they co-ordinate with their field mapping, work together and do what's required. They find they can make positive steps forward and, as it was before, they used to try and get one bloke to map half of South Australia, (laughs) you know, huge blocks of land where they could only skim it over; now they're getting their teeth into things. Together with modern geophysics it makes an enormous difference, the sensitivity of things below ground. Radar, which only goes to shallow depths, but an enormous gain on what we had before.

I'm fascinated to think, John, how your father would react to where you are now, all those years he fossicked in the hills or worked up at Blinman, and you said that as a young lad you weren't the least bit interested in some ways.

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Not at that age that I was going out with him. He had an accident, he fell down a ladder in his factory and cracked his spine and so forth, and he wasn't a quarter of the man he was before that. Leg broke from knee to hip in eight pieces and he was a terrible mess. But he survived that and sort of carried in a gentle way, and weekends in the field were the most he could do after that. He would have thought it was great fun and I'm sure we would have got to work together and got to know each other a lot. We used to go for hours and not say anything, looking at the same things. It was an unusual relationship. I decided he just liked to let me go, and occasionally I saw him grinning from the side and I realised that he was following everything, and (laughs) though it didn't sound like it at the time. I would have liked to have more conversations with him and I would have learned to speak better; I needed the practice. (laughs) And I have missed that, those early conversations.

It seems amazing to me, John, that you started your tertiary education as an analytical chemist and that involved a bit of Adelaide Uni, and then the time in Broken Hill, then ANU, and somehow it turns full circle and you're back teaching Geology at Adelaide.

Yes. I could have very well finished up staying in Canberra because I was comfortable then, but I just wanted a bit more, (laughs) get my teeth into it a bit more.

Well, look, thank you so much for being willing to be interviewed for this University of Adelaide project. It's been very delightful talking to you, John.

Thank you. Thank you, Rob.

END OF INTERVIEW.