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Interview with Ray Beckwith recorded by Rob Linn on 15th November 2005.

DISK 1

This is an interview with Ray Beckwith for the University of Adelaide Oral History on 15th November 2005 at Nuriootpa, interviewer Rob Linn.

Well, Ray, where and when were you born?

I was born in Cowell, in February 1912, Cowell on the West Coast.

Can you tell me a little bit about your parents – who were they, Ray?

Well, my father set up business at Cowell after he had travelled New South Wales on various jobs such as fitting electric bells and doing cornices in ceilings, odd jobs, for experience. Then in 1910 he decided to set up business in Cowell as a plumber and ironmonger, I think they called it then, and so he set up the business from a cold start and succeeded in that. He did a lot of tank making for the farmers, because that area on the West Coast, the Eyre Peninsula, was being opened up to farming, so he was busy making tanks for the farmers. And to simplify matters, he would make the first tank at a certain dimension; the second tank would be a little smaller, to fit inside the first one; and the third tank would be smaller again, to facilitate loading on the wagons. Well, off would go the farmers to their new property.

He also set them up with the standard 400-gallon galvanised tanks that came in with crockery from Ireland. He used that as a pot for a still. He made the condenser and the farmers went off with that. And now the reason was that the water, the brackish water available to the farmers in some instances was too saline for horses; so they would distil some water and mix that back with the saline water to make it acceptable, and of course they had plenty of fuel in the nature of the mallee that they were cutting down.

So he set that business up and succeeded, and in 1911 he had a house built at Cowell – and paid for it – and married.

My mother was a music teacher. She was from Wallaroo Mines, as was my father – – –.

What was her Christian name, Ray?

She was Blanche, Blanche Brown before marriage.

And your father's Christian name?

He was Arthur Henry, Arthur, yes, that's right.

So your mother was from the Copper Triangle?

Yes, that's right, from Wallaroo Mines. Her father was in charge of the stables, which was a very big set-up, with all the horses that were used on the mine; and my father's father was an underground miner, going back on that.

Anyway, my mother, Blanche, she did her training at the University of Adelaide at the Conservatorium, finally gaining a fellowship with the Trinity College, London. Moving to Cowell newly-married, she was in demand for playing the piano at concerts on various functions at Cowell.

In the next year, 1912, I was born and at the age of six weeks there was great drama. I'm told that I'd swallowed the safety pin on the dummy and the safety pin was open. This happened on a Thursday, and that was just a day that the steamship *Wandana* came into port, so my mother and I were bundled onto the ship heading for Wallaroo to her parents' home and away we went. But all turned out well. The safety pin appeared the right way up in the nappy the next morning, so that was a narrow escape. (laughter)

So, Ray, your family then moved to Murray Bridge, is that correct?

Yes, that's right. Well, we lived in Cowell until 1919, and I went to school at the age of five and soon after starting school I fell on a step, a concrete step, at the school and broke my leg. Well, that meant I was put into a cot, much to my great disgust, going into a cot at about age six, and Dr Mitzenmarker was the man. He set the leg and put it in plaster and attached a cord over a pulley on the end of the cot, and then tied a brick onto that to keep the leg straight. So that was the drama of the school.

In 1919, Dad had decided that any future prosperity related to water, so he looked at establishing a business in Mildura or Murray Bridge or Mount Gambier. You know this is water is the main key there. Anyway, he got to Murray Bridge and things looked favourable there so he decided to settle, and that's where we shifted in 1919.

So, Ray, did you attend school at Murray Bridge, then?

Yes. I did all my schooling at Murray Bridge then until 1928, which gave me the Leaving Certificate with some Leaving Honours.

And that was matriculation in those days.

Yes, that's right.

Leaving Honours.

But the matriculation required English.

Yes.

You had to have English, and in my first year at the Leaving exam, which was 1927, I had enough subjects but I didn't have English. And that was the year that only thirty per cent of the students passed, much to the anguish of the parents, you might guess.

Yes.

So my next and final year at Murray Bridge High School involved being sure to pass English, and of course doing some other subjects as well. Well, that came to pass and I finished up with about eight subjects, I think, in the Leaving and Leaving Honours Geography.

How did you come to then enrol at Roseworthy, Ray, in the Diploma of Agriculture?

Well, the Murray Bridge High School was an agricultural high school, and Arthur Hilton was the headmaster. He was keen on developing the agricultural side of education and although they taught agriculture at Murray Bridge I didn't include that in my list of subjects. He steered me in the direction of Roseworthy and through him I applied for an Education Department part seven scholarship, which was based on the Leaving results, and that was successful so that scholarship took me to Roseworthy in 1929.

Now, what was Roseworthy like when you first saw it, Ray?

Well, Roseworthy appeared to me as a venerable old building – I'm talking of the main structure now – and yet it wasn't even fifty years old. But it appeared like that to me and here we are, we've now passed the hundred years (laughs) many years ago, and it's still the same.

Did you have some colleagues that you already knew, Ray, or were they all new to you?

The farm manager, Lance Beaumont, was from Murray Bridge, so that was a useful link. And he was an old student of Roseworthy also, and he advised me concerning the initiation to 'just take it', and that was the accepted way of entry to the college, through initiation, to accept the initiation as it was. And of course the initiation was okay in many ways, but in some ways it was rather brutal and some students took delight in putting the first years down. That led to some investigation and there was major strictures after that on initiation procedures.

Can you describe what happened, Ray?

Well, I can remember some of them. The second and third years would buy first years, as racers. So okay, and we were put through two courses, a long-distance run and a sprint, and of course the students were betting on that. That was okay. There was – let me think for a moment. I can think of some of the final stages. But some of the students were keen, were rather keen on putting the first years down, to show them their place, and that wasn't so good. But then there were other features, and I can remember we had to be tossed into Cooper's Dam, so we'd be tossed in by – everybody would be tossed into the dam and okay, that was all right. And then at about the last proceedings, we all had to appear in the gym, naked, and we were crowned, and they had a pot, the usual chamber pot, and they'd fill that with warm linseed meal and all sorts of other mixtures and they'd plonk that onto your head and all this stuff – – –. But it was warm and that was more like fun, that was quite okay, and that was the final of the initiation ceremony. So (laughs) there it was. But everybody accepted it, that was it.

And, Ray, your course begins. Could you tell us a little bit about the course structure in those years, if you can recall that?

Yes. Well, the course structure right throughout the three years I was at Roseworthy, the course structure consisted of fortnights. The first week was 'A' and the second week was a 'B'. The first week, the A week, first and third years would be at lectures. In the B week, first and third years would be on the farm Tuesday, Thursday, Saturday, with the exception of the third years; they'd be at lectures Saturday. The second years, of course, would alternate on the As and Bs. So it

involved quite a bit of farm work. Now, for dairying we'd get out of bed about quarter past four and up to the dairy at about half-past four, and of course it'd be the first year students' job to bring the cows in, bring them into the bails, and then milking would go on from there.

Was it machine milking, Ray?

It was hand milking one side of the dairy and machine milking the other side, and so we had to do both.

How many cows in the herd?

I would say there were about forty, we were milking round about forty cows.

So a medium to large herd for the time.

Yes, that's right. And of course the instructor, former student Dolph Baker[?], he had his special Jersey cow, Nadia[?], and he insisted on milking her himself. She was a very high-yielding Jersey, yielding more than seven per cent milk fat. Oh yes, she was good. But (laughs) that was his pet.

Of course – I digress here for a moment. Okay, we're first years, we'd be manning the separator. So away we'd go. On this one occasion, Wally Bell was on the separator and of course the thing was when you're on the separator you take a Salvital tin with its screw cap, fill it up with cream and that will do for breakfast. All right, well, that was done in the usual manner. But the problem in this instance was that the dairy instructor, Dolph Baker, and Wally Bell had coats of the identical pattern. Wally filled the tin with cream and put it in the instructor's pocket. When we got down to breakfast, 'Where's the cream, Wally?' 'Oh, it's not there.' (laughs) So, somebody copped it with the loss of a few work marks for that day. Anyway, that's just a diversion.

A very good one.

And another activity, of course, would be on stables. Oh, I might mention that, on dairying, the first years had to appear at milking every morning, whether it was a lecture morning or not; they had to be on-deck for that. And also with the stables, with a big mob of horses, the first years had to be on-deck for feeding and preparing horses for work.

Where were the stables situated, Ray?

Right at the centre of the farm. I can't give you a key, I don't know how to relate it at the moment. But at the centre of the farm.

And were there many working horses?

Oh, yes. It was all working horses. We didn't have a tractor; it was all working horses, and we were using eight-horse teams. That was the usual thing. And for the, what we called the Smith's plough, we had a twelve-horse team, twelve horses abreast.

Was that the stump jump plough, as such?

Yes, it was. Yes, that's right. But we also had stump-jumps on the others as well. But I don't know the number of horses – I suppose it'd be seventy or eighty, something of that nature.

A large number.

A large number of horses, yes.

And they were draughts or half-draughts, I guess?

No, they were Clydesdales.

Clydesdales, were they?

Yes. And of course there was the stallion, in a separate yard, of course. But for stables duty, that was seven days a week for the first years and only work days for the second and third years. And that entailed being at the stables soon after five in the morning and at night to just finish off what had to be done the first years had to go up to the stables after half-past eight. So that was a very tiring week.

So the evening was for mucking-out, is that correct?

Oh, yes. That was done in the daytime. And of course you used the old horse Togo[?], he was the stable's horse, and he had stringhalt and that was very difficult to back poor old Togo. But he was a placid old thing. (laughs)

Another Clydesdale, was he, Ray?

Yes, oh yes, he was a Clydesdale.

Now, Ray, what type of feed were the horses being given? Chaff?

Oh, yes, chaff, and also some concentrates like bran, pollard.

And was that all produced off the property?

Yes, yes. Not the bran and pollard, but the chaff. We had a big hayshed and a big chaff cutter.

And would you have to do that as well or was the chaff prepared by the workmen?

No, the chaff was prepared [by] usually a workman with students. But that would not entail the people on stables.

Now, Ray, just as an aside, was the chaff cutter run by a stationary engine, can you remember that?

Electric.

An electric one?

Yes, yes.

So did Roseworthy College have its own electric plant in your day, did it?

No, we had the mains power.

Coming in from Gawler, was it?

Yes, Gawler and up to Wasleys.

Well, I didn't know that, Ray. There you go.

Yes, yes. (laughs) I can well remember that when the football final, when I was playing in the Bs, and it was so windy I can see those wires, they were almost horizontal. It was terrific wind. (laughter) That's why I remember it, my memory of the power lines.

Coming back to the, if I can just follow on with the stables, teams would be allotted on a list drawn up by the farm manager. The list would be posted in the college hall and then students would know how they were situated. And if you were on a team you had to go to the stables, groom your horses, put on the winkers and the collar and hames, and prepare them before breakfast. Then after breakfast you would go up and assemble your team. You had eight horses; well, you'd have to get them out to paddocks quite far away, and that meant you'd have to take them out as

usually a four-by-four. It was a bit iffy trying to get eight horses through the gateways and you could damage them, so that was the thing.

I have a vivid memory of using the twelve-horse team and you can imagine twelve horses abreast, that is quite – the reins went out at a very broad angle. And we're going along finally and the coupling between, in the middle of that, between the two sixes, the coupling broke and of course the horses, (laughs) they had to go right around. That was quite a feat to put everything together again, because they carried all the swingles and the levers with them, and they were heavy.

Ray, was that during your first year that that happened, was it?

No, I think that might have happened in the third year.

Goodness me, what a disaster!

(laughs) It was a disaster. And, oh yes, with an eight-horse team I've had the coupling break on the implement connecting the horses to the implement, the main coupling has broken and away go the horses and yanked me off the machine. Now, that's all right. There's all these heavy levers and horses; how the heck do you get them back again? So I remember taking one horse out with his chains and helping him and dragging all the other horses backwards, you see, because when you're on your own and you're not strong enough to do that job, to pull all that gear and the horses back to the implement, so that's how we got round it. Yes, you had to be a bit practical on some of these things.

So, Ray, was the practical side part of it, was it, really just learning as you went?

Oh yes, yes. That's right, yes. But we had – still with the horses – we had a very good assistant farm manager, his name was Gurner. He was ex-First War Light Horse, and he had a feeling for horses and he would make it his business to see that the horses were handled properly. And when we were out in paddocks the nosebags would be delivered for the horses. We had a one-and-a-half-hour lunch break and that gave the horses a break. And if students weren't careful and the horses had got their nosebags over the barbed wire of a fence and couldn't get the food, they'd get a ticking-off from the farm manager. He was meticulous on that, which was a good thing, of course.

Ray, did each of the paddocks have water, or was that at central points?

No, most paddocks had water, most paddocks. Sometimes you might have four paddocks, four small paddocks, and the water was in the centre of the four paddocks, yes; but the water was available right through.

So was that piped in?

Yes, it was piped, yes.

Then, Ray, you've described the course from the word go as being in fortnights of theory and practice –

Yes.

– what did the theory contain for you in those early years?

Well, the usual lectures as I've listed here in Agriculture, Viticulture, Dairying, Botany, Mathematics, Physics, Chemistry. They're all included in the lecture days.

Who were some of your teachers, Ray, that you recall?

Well, of course the Principal was W.R. Birks, Walter Richard Birks; and in Viticulture, Fruit Culture and Oenology was John Williams, referred to as 'Jock'. In Dairying, I've mentioned before there's Dolf Baker; and the veterinary subjects, the veterinarian was Bill Bennett, he also taught us Entomology and Microbiology. In Chemistry and Physics there was Alan Hickinbotham. In Botany we had a nice old boy, we used to call him 'Bees' Adams, I don't know how that eventuated. But he was a nice old chap. But when he retired there was a chap, a university man, Clark[?], I've forgotten his first name; but I digress for a moment and recall a little incident concerning him.

He was red-headed, and the students referred to him as 'Ginger Meggs', we called him Ginger Meggs, (laughs) we didn't call him 'Mr Clark'; away from his face he was Ginger Meggs. He used to come in from Adelaide by train and then the college light truck would bring him from Roseworthy Station to the college, so that was the usual thing. And on this one occasion, two of the girls living on the college – one was Coral Lodge, I married her, too; (laughter) and the other was Edna Gilbert – they were going to Gawler so they were to travel on the college truck and then train into Gawler, and of course they were all set up as in those days with, nicely-dressed, hat and gloves.

Of course.

They got on the truck and here is Mr Clark. My wife addressed him as, 'Good afternoon, Mr Meggs.' (laughs) Well, he just smiled and he took it nicely, so that was Mr Meggs. Well, he was on Botany.

For Surveying and Wool Classing and Building Construction, we had visiting lecturers. I've just forgotten the names of them. For Bookkeeping we had the house master, college house master, Bill Cowper. And for Aviculture, Poultry, we had Freddie Gilbert, he lived on property – as most of them did.

So was Freddie Gilbert Edna's father?

Yes, that's right. And for Mathematics, of course, again that was Bees Adams. Now, the farm manager, as I mentioned, was from Murray Bridge, Lance Beaumont, and he took me aside and gave me a little, as I mentioned, a little bit of fatherly advice.

I'm wondering, Ray, could you tell me a little bit about how each of those people struck you? What was W.R. Birks like, as a character?

Now, yes, he was a character in his own right. In a certain way you might say that he was somewhat eccentric, but I learned a lot from him. He used to stretch you a bit and I remember in one lecture he said, 'All right. Here's a grain of wheat. Now, grow that grain of wheat. How long will it be before you'll have enough wheat to issue seed to the farmers? Now, do that in your head.' Now, that entailed applying how many heads you're likely to get, how many grains are in a head and so on, and he just wanted to stretch you. And if you said ten years or eleven or twelve, well, that was alright by him; he just wanted you to work.

Okay, he used to jingle his keys at his lectures. That was a little bit distracting. But he was a former Army man, World War I – captain, I think he was – and he used to do things that used to upset the students. He would drive around in his Buick car, around to the paddocks, and you'd be working away with an eight-horse team and he'd come on behind – you wouldn't know he was there – he'd stop and pick up a clod and throw it at the horses to make them move, you see. Well, that wasn't appreciated. (laughs) And then also if there was a squeaky bearing on a cultivator he'd say, 'That should be oiled.' And of course, well, we didn't have any oil. 'Well', he said, 'you would have had butter for your dinner. He said, 'You could have used the butter, couldn't you?' (laughs) So that was him. They're minor

things, I suppose. But, all in all, I think I learned a lot from him. He was quite knowledgeable.

What about Jock Williams, Ray?

Oh, well, Jock Williams: he was very popular with the students. He played cricket with them, he played football with them, and he went along, he could talk their language in that sense. And so he was a good lecturer in that manner.

How did you find Alan Hickinbotham?

Oh, I found him an excellent lecturer, top-class. And if you'd concentrate and you listened as he developed a subject, you could project ahead, you could see what he was aiming for, because he was logical with that. I think he had a lot of time for his students, but I think you might say he didn't suffer fools gladly. If people mucked around, well, that was – he'd come down on them. He was a forward thinker. I think in some ways he was ahead of his time. A little after I'd left Roseworthy he put up a proposition that the malolactic fermentation took place in Australian wines, and he was pooh-poohed by some of the leaders of the industry and they said, 'Oh, our climate is too warm for malic acid to be in the grapes.' But of course why we couldn't prove things is at that time we didn't have analytical methods that would separate the various acids. So anyway, he put forward this theory and of course it proved correct in due course, so he was a good forward thinker.

I enjoyed working with him as a cadet. If I bring that into focus, after I'd finished at Roseworthy I couldn't get employment and I kept books for my father at the hardware store, and then I went student wool-classing at Plumbago Station in the North-East of the State, where the shearers did thirty thousand sheep in six weeks, so that was a busy time. That was a most enjoyable time. And when I came back there was a letter for me from John Williams at Roseworthy, offering me a cadetship with him in the viticulture, oenology area, at ten shillings a week and keep.

Ray, am I right in saying that the cadetships came through Dr Alan Callaghan after he'd become Head at Roseworthy?

Yes, that's right.

Yes.

Yes. Cadetships were introduced through Alan Callaghan.

So he had succeeded W.R. Birks.

Yes. At the age of about twenty-seven, twenty-eight.

Amazing, really.

Yes. So there was the cadetship with John Williams, and in due course I was doing some work with a cultured yeast for winemaking and I transferred to the laboratory with Alan Hickinbotham. And he was a great tutor, in the sense that he wouldn't tell you what to do, he'd say, 'What do you think will happen if so-and-so is done?' And in that sense he would stretch you, he'd make you think and work it out. So I rate him very highly.

He was a true scientist, Ray?

Yes. Yes, he was.

Now, just keeping going with this digression, you did a paper –

Yes.

– from your cadetship, is that correct?

Yes, that's right.

On the cultured yeasts.

Yes.

And what happened to that?

Well, I wrote out this paper and I showed it to Alan Callaghan – he was Dr Callaghan then – I showed it to him and he said, 'Yes, okay. But wait a minute', he said, 'I'll lend you some of my work, a thesis, of how to go about this.' So with his encouragement I rewrote it and then John Williams presented that to the winemaker conference in Melbourne in about 1933, I think it was, '33 or '34 –

'Thirty-four?

– in '34.

About October?

Oh, that's right, yes. He presented that. And that created a lot of discussion. And I showed an economic advantage for producing fortified wines, because the more

efficient the yeast was the more alcohol was produced and less added spirit, which carried excise duties, less had to be added, so there was an economic advantage. Well, okay, that was that. Leslie Penfold Hyland spotted that item and went in to my father and said, 'Where's that son of yours? I want him.' So at that time I was working for Hardy's at Mile End, and a meeting was arranged, I met him at his club, and he offered me the job here at Nuriootpa, assisting the manager, I suppose. There was no title to the job. And I went back and spoke to Colin Haselgrove at Hardy's – I liked working for Hardy's – and he said, 'Ray, you take it for your own benefit.' He said, 'We can't offer you the equivalent of that until several years in the future, so', he said, 'you take it.' So I did that and leaving with a nice feeling with Hardy's.

You worked with Colin and Roger Warren?

Yes, that's right.

Was Dick Heath there by that time?

Yes, yes, Dick Heath was there, yes.

Well, you did have a crew, didn't you?

(laughs) Yes, that's right, yes.

So, Ray, just coming back from that digression, because this is the time when you go into Penfold's and begin your working life with them –

Yes.

– coming back to the course structure at Roseworthy, who were some of your colleagues at the time that you recall well?

Alright. Well, there was George Hubble, and he took the Gold Medal – I've got the marks here: out of six hundred, he got 2,184 marks and I came in with 2,183. And then there was Ron Brecken[?], he was killed in World War II – in New Guinea, I believe – his son was involved with pigs with the Department of Agriculture. As Tom Tor[?], he decided to become a doctor in the age late thirties, and succeeded in that. There's Day[?], I can't think of his first name for the moment, Day, he farmed somewhere near Victor Harbor. He was a good tennis player – 'Lofty', we called him, yes, Lofty Day. He was a good tennis player. There was Lewis McCarter[?], he was a prisoner of war in Germany, and while a prisoner of war he set up lectures

in agriculture to the prisoners and he came back and resumed teaching at Urrbrae High School.

Was he Jim McCarter's father, do you know?

Yes.

He was?

Yes. He was involved with some of the –

Jim was with the *Chronicle* for many years.

The *Chronicle*, that's what I was trying to think of. Yes. And then Stan Klose, K-L-O-S-E, he was from Lobethal, he went into the Department of Agriculture in Queensland, I think. And of course John Kilgour, he went to Stonyfell.

Now, was John Kilgour also known as 'Jock' at times?

Yes, that's right. But not much of that at Roseworthy. I'm aware that he was called Jock later on. Of course he went to Tatachilla too, didn't he?

He did indeed.

Yes.

Trained a lot of Hardy's fellows as well, I think.

Oh, yes, yes. He was on the ball, he was head of the wind judging at the Adelaide Show. He was clued up on wine, John Kilgour. Wally Bell, he went into meat inspection. Telfer, Doug Telfer, he became a minister of religion.

In the Methodist Church.

Yes, that's right. He said, 'When I was doing my rounds I used to look for smoke coming out of a chimney and I thought, "Well, I'll get a cup of tea there."' (laughter) And Joe Morphett, he finished up teaching, but he was in World War II and he was in an aircraft crash, I'm not sure whether it was a Liberator. Anyway, he was in an aircraft crash and they pulled him through that with the aid of some of the new medication.

Penicillin?

No, it was before penicillin.

Sulfa?

Sulfa drugs. And there's Pengelley, he was a farmer. I think he's had his farm at Arno Bay, in that area. Lloyd Oppatt, I'm not sure what he did. Lindsey[?] Johnson, J-O-H-N-S-O-N, I don't know what happened to him. And Appleby, he was at Renmark on a fruit block. And Norm Clark. Now, I don't know what happened to Norm Clark, but I think he was killed – I'm not sure, I don't know the details of that. But that was the class.

Now, Ray, given a varied mob of blokes like that, what was your social and sporting life like at the college?

Well, the social life was there were some dances, of course, there was college dances. But otherwise, to a great degree, you had to make your own entertainment. And after the student strike in early 1932, when Walter Stafford was appointed to carry on the administration – he was from the Department of Agriculture, also an old student – the first thing he noticed was there's not much entertainment. So what did he put in? A billiard table and jukebox, and he gave the students some activity after hours, which was a plus, of course. But in my time we didn't – there was the piano, and there were sometimes singsongs around that, that was some pretty lusty singing. (laughs)

That just brings to mind – we're going off on a tangent again – that brings to mind the church services each Sunday morning, and of course that was I suppose you'd call it ecumenical. There was a list of parsons, reverend gentlemen would appear for an hour on Sunday morning. The Catholic boys would go to Gawler, transport would be provided for them. Yes, and of course the piano was used for singing hymns and when it was *Onward, Christian soldiers* and things like that, well, I tell you what, the boys just about lifted the roof. (laughter) They loved that one. But that's just a digression.

So they were a fairly lusty mob.

Oh, yes, yes, they were, yes.

And the sporting side, Ray?

Oh, the sporting side was good and it revolved mainly around cricket, football, tennis, swimming, they were the main activities. In the football area I was most

impressed with Laurie[?] Spencer, in my first year he was third year, and he was captain of the football team. He was one of these chaps with an easy charisma. And Friday night we'd be all assembled in one of the lecture rooms and he would preside over that and, with the blackboard, tactics were worked out and it was a very good set-up. Laurie Spencer went to England and joined the RAF[1] before World War II, and he stayed in there till he retired. But that was quite good.

The cricket, there was A and B teams – the football, A and B teams. I played B football and B cricket. Some of the lecturers would take part, particularly in the cricket: Jock Williams, Alan Hickinbotham were a couple. I think Dolf Baker earlier on – he was football, yes, that's right.

And then tennis, I played tennis for the college. We played in the Gawler circuit.

Yes, I was going to ask you that, who you played against. So would that have been Freeling and all that mob, too?

No, not Freeling. No, it was mostly the Gawler group, there was quite a few teams in Gawler then.

And Gawler River as well, was that in it? You would have had the Dawkins[?] if you did.

Yes. Well, we did have some Dawkins, we did have, yes, that's right. I just forget the real set-up of the teams now. I was only thinking yesterday, how did we get in there? I can't remember how we travelled in those days, but mostly it would have been something with horses.

Was it on the back of a cart or a wagon?

Yes. We might have even used the college, the Morris commercial truck, the light truck even, we could have used that. But of course, for the cricket and football, the drags were in order and of course in cricket we played as far away as Smithfield and Lyndoch for football, Rosedale for cricket, Roseworthy – you know, we get around that area.

Can you tell me about the drags, Ray? What were they like?

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[1] RAF – Royal Air Force.

Oh, well, as you see in the picture there, the big drag was, for the big number of students, we'd put five Clydesdales in – two on the pole and three leaders; and the small drag, well, we'd have four horses there for the small one. And of course we used spring drays too, to get around, and bicycles – well, no, not only bicycles; I was one of the few that had a bicycle there at Roseworthy. Nobody had a car.

No. Oh, no. I was surprised that Roseworthy even had that Morris commercial truck you spoke of.

Oh, yes. (laughs) That's it.–

That would have been advanced for the time.

Oh, yes. And of course that was to pick up the mail every day, and anybody visiting. That included the visiting lecturers and staff members. And what else can I think of with the sport? The sport was relatively strong. And of course there was sports day and we had quite good activity there with the running, jumping, hurdles, long jump, high jump and sheaf tossing.

Sheaf tossing?

I must tell you about the sheaf tossing. (laughs)

Yes, please.

In the first year, on this one particular day, we'd been up to the farm for instruction on some project with Tom Cole, the lecturer, and on the way back there was the sheaf-tossing set-up – the bar and the fork and sheaves bound in hessian – and he said, 'We'll have a look at their sheaf tossing.' So, alright. We threw the sheaf around a bit and I was convinced to – 'Oh, we'd better join in, for the junior.' So all right, I joined in on the junior and won it – of course, to my surprise. So the next day they said, 'The senior sheaf tossing, you'd better have a go at that.' So I won that, too. (laughter) And the next year – and I think we put up a record; and the next year I went into the senior again and won that, and they put up a record at thirty-two feet, two [inches].

Had you ever tossed it before, Ray?

No. And I won a watch on that, so that was fine. And the next year, my third year, I had a go but I couldn't repeat it. I'd been on a cultivator all day with eight horses

and the cultivator was choking with straw and I was pooped by the time I'd finished the day. So I had a go, and all right, I couldn't make that. And the sheaf I liked, the nice, tight sheaf, somebody threw that up in a tree so I couldn't use that one. (laughter) So the next day I thought, 'Well, I'll have a go', and there was the bar at the record height and I could put it over that the next day, but of course that doesn't count.

No.

So that was the sheaf tossing, which was amazing. Thirty-two feet two, I'll come back, that was for first year; thirty-five feet was the second year.

Thirty-five?

Yes.

I think you'd win it today, still, Ray.

But, oh, (laughs) when you see what these Schwert[?] boys used to do – – –.

I was going to ask about that. Did you ever meet them?

Oh, yes. They are just fantastic. They really put it up and it looked so effortless. But as I found, the thing is that you just get that final flick as the sheaf leaves the fork, and it's that final flick that gives it the impetus. (laughs) So that was just a little digression.

So this was the sports day on the campus at the college.

Yes, that's right, yes. Well, it would be related to the sports day. It would be the day before.

Oh, I see. So did many people attend those type of functions, Ray?

Yes, we had quite a few people would come in – oh, not a big crowd, but enough to make things interesting.

And obviously, from what you said, the staff very much encouraged the sport.

Oh yes, yes. They were good. And then, while we're still talking of sport, Alan Callaghan had a – as I was a cadet then, Alan Callaghan had a nine-course golf course put in. And that was very interesting.

So then there was the opportunity for students to partake in that.

Yes, that's right.

So how did your golf go, Ray, did you actually start on that, too?

Oh, no, I didn't star in that but I enjoyed it. (laughter) And I also found out that when you have a good day you think, 'Well, now we're getting this game licked', and the next time you go out you're a real bunny.

Ray, I might just go over to the next session on the recording, if that's all right.

Right.

Just excuse me.

END OF DISK 1: DISK 2

This is the second session of an interview with Ray Beckwith on 15th November 2005 for the University of Adelaide Oral History, interviewer Rob Linn.

Ray, just coming back to the progress through the course at Roseworthy, could you tell me a little bit how the course progressed for you: what subjects you took and your specialties as you went along?

Yes. Well, I put an accent on the agriculture and viticulture; dairying, in the practical field; I liked the veterinary subjects and that became important later on, when I was looking for a job, when I was thinking of what am I going to do. And so I've mentioned the viticulture, oenology, the dairying and the veterinary subjects. And when I finished it was a toss-up: all right, it was Great Depression. Unemployment was thirty per cent, and no dole. I thought of going on to the University to do a science degree in Agriculture, but my father took me to the Waite Institute and we met Professor A.E.V. Richardson, the Director, and he said, 'Ray, there's too many BSc's driving tramcars.' He said, 'Get a job, and forget about university.' So that's just what I did. Well, then, which direction?

I didn't want to be a farmer, so there was dairying, but that was in the technical side of dairying, factory work; or wine-making; and there was a scholarship going at Sydney University for Veterinary Science. Well, I knocked back the Veterinary Science because of the Depression. A lot of farmers could not afford the veterinary fees, because the veterinary fees were higher than the value of the animals in some cases. And on top of that, five years away from home was a bit daunting.

Had you been outside South Australia at this time?

It would have been, yes, there was no veterinary course in – – –.

No, it would have been in Sydney, Ray?

In Sydney, yes.

Had you been outside of South Australia?

At that time, no.

So it was a very big thing.

Yes, that's right, yes. And so it was the oenology that won over, so that's the core. And of course the subjects that support you was Chemistry and Physics and Botany and Bookkeeping and all these sort of things, well, they supported those courses.

Ray, were your parents supportive of your education?

Yes, yes, they were. And there was talking that I should go to Montpelier University in France.

Who suggested that, I wonder?

Well, there's a link-up here. My father was in hardware and he dealt with Haselgrove's[?] in Gouger Street, and of course the chief, Mr C.F. Haselgrove, he took an interest in me. And he was a nice old boy, and when I had my Intermediate Certificate I remember he sent me congratulations and a pocketknife, you know, that sort of thing. Now, his two sons, Colin and Ron, went to Montpelier, so my father thought if I'm going into the wine business, well, that wouldn't be a bad idea. But that didn't come to fruition because other things got in the way, and I got married instead – not that I regret being married, (laughs) but that's the sort of thing that happens.

So you married Coral Lodge.

Yes, that's right.

So who were her parents, Ray, and what did they have to do with Roseworthy?

Well, Coral Lodge went out to Roseworthy to help her sister, May – May Williams, John Williams's wife, so you can see the connection there. (laughs) She was living with John and May Williams, and of course Stan Klose[?], who was another cadet,

and I went off and found ourselves down there playing bridge and with a nice supper, and that's how things progressed. (laughs)

Now, Ray, it seems you were doomed to the wine industry at every turn.

Yes. (laughter)

Can you tell me a little bit about the structure of the oenology and viticulture within the course you did?

Yes, yes. Well, the viticulture, that consisted of a lot of practical work as well, besides doing the lectures. The college was set up with nice vineyards, low-yielding vineyards, and they made their own wine, of course. And the Oenology course was optional, an optional subject in the Roseworthy Diploma of Agriculture. And I think it was optional because some parents objected to their sons being involved with wine. It was the time – this is way back; here we are in 1930, in that area.

Prohibition.

Yes. And, well, they didn't like the idea of students being associated with alcohol. So that was it. It was a good, basic course. John Williams was good in the basic elements of the subject and he lectured quite well.

So was he doing the winemaking as well as the viticulture?

Yes. He was doing Viticulture, Fruit Culture and Oenology.

And in those days Alan Hickinbotham was purely the Chemistry, was he?

Yes, that's right. Alan Hickinbotham joined the college in October 1929, in my first year.

What winemaking facilities were there in those days at the college, Ray?

Well, we had the Horwood Bagshaw crusher, which was a very good little crusher but very subject to blocking if you fed too much at once. (laughs) But, okay, it was a simple crusher. And then we had five or six fermenting tanks, which would take a few tons of grapes, open fermenters. We had underground tanks, and we had a basket press and of course the pumps were hand pumps, plus all the odds and ends that you need to do the winemaking.

And was there concentration on fortified wine production?

We did both. We did mostly dry red wine. And then Sam Wynn[?] came into the scene – and, see, this was Depression time and the Government, the costing against Roseworthy, that was restricted and Roseworthy used to run on deficit finance in those days. Roseworthy, the college would have spent so much money, and all right, the Government would make that up in due course. And I believe there was a hue and cry from the politicians because Roseworthy cost them eight thousand pounds. (laughs) At that time. So the money was restricted. Now, we had a crop and we had to do something with the wine. Sam Wynn, of Melbourne, he came into the picture. He supplied spirit to fortify the wine to port and he provided the hogsheads to transport it. So we'd make the wine and fill the hogsheads and off to Sam Wynn, and that gave us a bit of a fillip.

Now, Sam Wynn had a share in winemaking facilities at Magill, too, I think at the time.

Yes.

With Hurtle[?] Walker.

That's right, yes, that's correct.

So he would have had a strong South Australian connection.

Yes.

Now, Ray, do you recall how large the vineyard was at Roseworthy?

I can't recall exactly what that was. I would have thought about forty acres or something like that.

And varieties?

Yes. We had Shiraz and Cabernet Sauvignon, that I can think of. I can't recall what the other varieties were. But I know that we had a range of varieties, like a few vines of various varieties. I can even remember Doradillo being there.

You wouldn't have been alone having Doradillo in the vineyard, would you?

(laughs) Doradillo, there was some Muscat as well.

Now, the Doradillo was a grape that was planted along the river, wasn't it –

Oh, yes.

– for irrigated – – –.

For spirit, yes. Oh, I remember we had some Malbec.

Now, Ray, did you visit other wineries as part of the course?

We did very little of that. We did more in the area of dairying, visiting the dairying factories than wineries. I'm trying to think of visiting wineries. I don't recall that.

Well, I wonder could we digress from the wine for a minute, Ray, which we'll come back to; talk about the dairy side, because you became very interested in dairy technology, didn't you?

Yes, that's right. And coming from Murray Bridge with the strong dairying influence from the irrigated, reclaimed swamp areas, and my father at the hardware store was very much involved with the dairy farmers, and also the ..... farmers, but he was strongly in support of agriculture. Wait a minute, I've just lost my train of thought there – oh yes, the dairy technology, that's right. And at high school, with Leaving Honours Geography, we had to do some economic history and economics of the area: well, of course, dairying and dairy technology at the Farmer's Union and Amscol factories, that was an important part. We lived next door to the foreman of the Farmer's Union factory, and I had just about carte blanche entry there and I used to roam around in that factory. I knew that factory inside and out. So that was before going to Roseworthy.

So then what appealed to me was the Morphett Prize in dairying, and of course the Morphetts were very much involved at Woods Point, just downstream from Murray Bridge. So all right, well, the dairying was interesting, so I gained the Morphett Prize in year one, first year, and the Morphett Prize in year two, and again in year three. And that included, if you please, a gold medal. (laughs) But nevertheless, I enjoyed that work.

Do you still have the gold medal, Ray?

Oh, yes, yes. So that there was an accent on dairy technology. And Dolf Baker was very supportive there, as a lecturer, and visits to milk factories, that all encouraged that thought.

Do you recall any of those visits to the factories at all?

Well, in particular in Gawler, the butter factory – what's the name of it?

No, I'm struggling.

I can't think. But a butter factory in Gawler was one, and of course to the Murray Bridge factory for another. So they were good.

So there was a strong practical accent –

Oh, yes.

– on each side of the course.

Yes, that's right, yes. And of course at Roseworthy we did butter-making and cheese-making, and we went through most of the motions but in the simple farm setting. But I liked the technology of it and particularly with the cheese-making and with all the bacterial work involved in that – there's quite a bit there to interest one.

I was going to say, Ray, the scientific side seems to have suited your character to the ground.

That's right. Yes, that's right. That's what I preferred.

Now, Ray, you said when you completed your course successfully it was a very difficult time in the Great Depression.

Yes.

Your father took you to Waite Institute.

Yes.

What did you do to try and find a job in the short term, how did you approach that?

Well, I was on the lookout for any opportunities and I suppose to be useful. As I mentioned, I kept ledgers for my father. That enabled me to do a little bit of fishing occasionally, (laughs) and of course there was the main social event at Murray Bridge, the Hunt Club Ball, I got involved with that and involved in some of the local things. And then of course in July the offer to go with School of Mines to Plumbago Station.

So was that for wool classing, was it?

That was wool-classing, yes, student wool-classing.

Had you been doing a course there?

Well, we'd done that at Roseworthy.

I see.

And this was School of Mines, and here we are, right in the practical field and, as I mentioned, thirty thousand sheep in six weeks, that's about a thousand a day.

Was it a twelve-stand shed?

Eight.

Eight.

Eight stands, yes.

That's a lot of sheep going through.

Yes. (laughs) And I distinguished myself: of course, as you know, with manning the tables, you have to wait at the start of each run until some fleeces come on. Well, one of the shearers had a poisoned foot and his stand was vacant, so what did I do? I didn't ask anybody; I just went up, grabbed a sheep and shore it. And (laughs) the wool-classer said, 'Well, that's okay, Ray, but don't do it again.' He said, 'You'll upset the union rep.'

'The whole shed'll go out.'

So that was that. Yes.

So that was 1932, Ray –

Yes.

– you were involved with that.

Yes.

And eventually you're searched out from Adelaide and brought back, is that right?

Yes, that's right, yes.

And you come back to your cadetship.

Yes, that's it.

Now, could we just go into some more detail about the cadetship and what that involved for you back at Roseworthy?

Well, to start with, that was November 1932, and I went into the winery with John Williams. That involved handling the wine, racking and cellar operations, so that was getting onto the practical side; and also viticulture, doing some vine breeding with crossing varieties – that was interesting, but of course that's a long-range thing and I wasn't there long. But it was interesting to do some of this crossing of varieties and seeing the grapes develop from that. But of course it didn't come to anything, simply because I left after a short time. And then all the winery operations; and then that was followed on with the session with Alan Hickinbotham.

Yes, which proved to be very successful.

Yes, that's right. That gave me the leg on.

And that brought you to the attention of Leslie Penfold Hyland.

Yes, that's right.

And, Ray, when you went to Penfold's, in one sense you came into contact with the University again on many occasions after that.

Yes, that's right. Oh, yes. See, I started – Leslie Penfold Hyland asked me when would I be ready to start, and I said, 'Well, okay, I'm ready on the 13th December 1934.' And he wrote me a letter and said, 'Don't worry about that. Here's a cheque for five pounds and start on 2nd January 1935.' (laughs) So that was away.

Was five pounds a significant sum?

Oh, yes. Five pounds. I started with Penfold's at four pounds ten until the first vintage and then I went to five pounds a week, and okay, that was all right.

Just to have the work, Ray, was it?

Oh, yes – and five pounds, we were quite comfortable on that and we saved up some money and in 1939 we bought our first car for about two hundred and thirty pounds.

So you were married to Coral by this time?

Oh, yes. We were married at the end of '36. But in 1936 in September I went to the University with Professor Killen Macbeth and also Dr Pennycuick, C.W. Pennycuick.

C.W., was it?

C.W., yes. They were good to me, they introduced me to the Cambridge pH meter, how to get along with it, and then Professor Macbeth offered me the use of his private laboratory, so I worked there.

Could you tell us what you worked on, Ray, because this is particularly interesting, both in the University allowing you to do it but also it played a big part in one of your contributions to the wine industry.

Yes, that's right. Well, we have to go back a step and the mid-'30s were plagued with sweet wine disease in the wineries. To say that that would go through a winery like a bushfire is perhaps being over-dramatic, but the winemakers didn't know when this would pop up and it would be wine in hogsheads, which was most inconvenient because (laughs) you can't do anything with it in hogsheads and of course you have to pump it out and deal with the wine. Well, of course, there's all this wine spoilage going on and nobody knew what to do with it. So there was all sorts of theories of what it was and the French literature was no help to us, so I worked along the lines that I thought pH might be involved with this, having been interested in pH under Alan Hickinbotham. So all right, so I went to the University and took my wine. Don't forget, the transport was by train –

Ah yes, of course.

– and walking from the station to the University, and I could only carry a certain amount. I've often wondered why I didn't carry wine for presentation, but of course I couldn't carry it. So anyway, that's by the way.

I wanted to find the effect of various acids on the pH of wine, so I used tartaric acid and citric acid and sulphuric, I think it was; I used a range of acids, showing the effect on pH. So that meant measured additions and then recording the pH. And of course this was great sort of data for a graph, so I graphed all the results and as I mentioned earlier at the University some of the graphs finished up on dotted lines because I'd run out of sample, the Professor had drank my samples. (laughter)

This is Professor Macbeth?

Yes.

He'd drunk your samples?

(laughter) So there we go! And now, that gave me a bit of understanding on pH. But it still didn't solve the problem of – – –.

Did you write a paper up on that, Ray?

Only internal, because that was the time you didn't discuss what you were doing, to other winemakers. But I sent a copy to Professor Macbeth as a courtesy, describing it. I remember that was a typed foolscap and there was a couple of lines on the next page, and that stated along the lines of: 'pH might be a useful tool in the control of bacteria in wine.' Now, that was a sort of a throwaway line, but that was the key to the whole thing. So we got a little more understanding.

Now, we'll project forward a little. The wine industry, of course, is very worried about this sweet wine disease because it was occurring in the wines that had been sent to London.

Yes, and it caused a significant monetary loss.

That's right. Big problems. So the Wine Board appointed John Fornachon to do some research. Well, he determined that it was lactobacillus, and he also subjected the growth of the bacteria to varying conditions with acids, pH, tannin, alcohol, temperature, all these variables, he subjected the bacteria to those conditions. He issued a preliminary report, and that was a roneoed report, I remember, the old roneo method of duplication. And prior to going home to Murray Bridge for a weekend, I'd popped that report into my pocket. Well, the Melbourne Express was crowded; my new wife, she found a seat; I couldn't, so I sat at the end of the carriage under a dim light, I sat on my suitcase. Well, that wasn't very exciting with the clackety-clack of the rails. I pulled this report out and read this under that dim light, and the penny dropped. I thought, 'Gee, I can use this', and being interested in pH I couldn't get back to work quick enough. So I got some information and Leslie Penfold Hyland appeared on his usual Monday morning visit and I broached this subject and told him what I'd done, and he said, 'Well, you'd better get some information.' And I said, 'Well, I've done that, Mr Hyland', and I held up three brochures. He said, 'Which is the best?' And I said, 'This one, the Cambridge.' 'Well,' he said, 'get it.' Now, that gives you some idea of perhaps the feeling about the problem of this sweet wine disease because it was a real – – –.

Wasn't that worth about a thousand pounds, Ray? Was that right, or is that – – –?

No, that was a hundred pounds.

Hundred pounds.

A hundred pounds.

But that's a lot of money.

That was twenty weeks of my income.

Exactly.

So, as I say, he didn't even ask how much it cost. 'Get it.' But you can see he was so embroiled in this problem that this looked as though it might be useful. So I got it from Fauldings, they were very helpful. Well, all right, here's the new equipment, now what are you going to do with it? What standard are you going to adopt? So I was flying blind at this stage, but I had Fornachon's raw data and I interpreted from that and worked out my standard and I'd say, 'Well, pH being a negative factor, it must be not more than pH 3.8', and that was the standard. And to achieve that, if a wine was more than pH 3.8 I used tartaric acid to bring it down to that level. So that was the start of the control of the lactobacillus in wine.

Now, I've been through almost thirty-nine years with Penfold's and I haven't lost a gallon, a litre, of wine through bacterial action, because it was attention to detail. But I'm not the only one in it; I had a good staff and they had their standard and they stuck to it through thick and thin.

But, Ray, this was a huge step forward for Penfold's, wasn't it?

Oh, yes. And of course you don't tell anybody else, you don't tell the others what happened. Of course, John Williams knew and Hick, they knew about it. And of course these things, they filter out and with what John Fornachon had done the industry finally cottoned on to that. But I'd cottoned on ahead of them.

It's interesting with Hick and John Williams, Hick goes on to become basically the State Chemist, didn't he?

Yes, that's right.

And John went down to Coonawarra with Wynn's, didn't he become their chief viticulturist?

Yes, at Modbury.

At Modbury.

Yes. He used to travel to Coonawarra, and he used to tell his boss, David Wynn, he used to tell him, 'Look, David, if you don't slow down from ninety miles an hour I'm going to get out and walk.' (laughs)

Now, Ray, I just realise that I neglected to ask you something about the college life itself that we discussed earlier, and that was your part in the exhibition of 1931.

Yes, that's right.

I apologise.

That's a separate chapter. (break in recording) Yes. Well, this was quite an adventure. The college had entered an exhibit in the 1931 exhibition at the Exhibition Building on the corner of North Terrace and Frome Road, but the college truck was too small to take the museum cases, the glass-topped cases, with the exhibit. So John Kilgour and I were given the task of taking the exhibit to Adelaide on a hay wagon with four Clydesdales. So, in due course, the wagon was loaded up ready for an early start the next morning. It was wintertime. We started off in the dark with our four horses. We were at about Roseworthy by the time the sun came up, so we were well on the way. We went through Gawler, of course, on the usual track and nearing Smithfield one of our horses, Hawick – H-A-W-I-C-K, I remember his name, Hawick – went down in the shafts. Well, we managed to get off, to just get clear of the road, and here was a horse down. Now what do you do? Well, fortunately our veterinary officer, Bill Bennett, was following on behind. So he diagnosed the problem as 'windy colic'. He said, 'Ray, go over to that farmhouse and ask the woman if she's got a pound of bicarb soda', which I did. She had the bicarb – bicarbonate of soda – and let me have it. So I took this back to Bill. He opened the horse's mouth and with handfuls of bicarb he shot that in over his tongue, and in no time the horse got onto his feet again.

Well, now, being a shafter, and you're travelling on the board behind the horse, you're close up to him. And Bill said, 'Well, he might be blowing off a bit on the journey.' (laughter) Well, we didn't fancy that very much, so we decided to tow him and put one of the leaders in the shaft, and off we went. Of course, that took us

through what is now Elizabeth but that was farmland: it was wheat crops, hay crops and just the occasional house. So we moved along at a very leisurely pace, as you may guess, and the sun came out. I can remember how I could lay back on the feed bags and John would drive, and we'd take turns. Eventually, we arrived at Frome Road and now we had to get into the Exhibition Building.

Ray, should we explain that the Exhibition Building was situated next to what is now Bonython Hall –

Yes, that's right.

– approximately where the Law School is.

Yes, that's right. Yes, that's it, that's the one. School of Mines, as it was.

And the gateway, these big, wrought-iron gates – the gateway was just a little wider than the hay wagon. Of course, it's a full-size hay wagon. So John Kilgour took the leaders off and I was able to edge the horses and the wagon through this gateway and we unloaded and okay, that job's done. Now, it was the Jubilee Oval in those days, just adjoining that was some stables, so that's where we left our horses. John went to his home and I went to a cousin's place at Westbourne Park and that was that.

The next morning we harnessed up and off we go to Glenunga. There we picked up a piano, and for the life of me I can't recall how we got that piano up on a hay wagon, but we did. And then we moved back into the city and found ourselves at the south end of King William Street. In those days, of course, no traffic lights, it was point duty policemen, and we just mooched along gently. The tramcars would come behind, you'd hear 'ding-ding-ding', and they were very patient, nobody abused us. We'd have to wait until we could pull over to let the tram through. The point-duty policemen were helpful. So that took us right through King William Street as far as Hindley Street. So we turned into Hindley Street and then again John took the two leaders and I went down Hindley Street until I could find a place to turn round with just the shafters. I returned, and we pulled up against Smith's furnishers, and we loaded some chairs on there. Okay, off we go again, into King William Street, down to North Terrace, and we're pulling around – I was driving and pulling around the point duty policeman, I nearly ran over his toes (laughs) but he didn't mind. And of all things, on that busy intersection, down went a pair of shafts. The back chain had

let go. So what do you do? There's no other thing: you have to get out and lift the shafts and attach the back chain. So we did that and back to Frome Road and out of the city, with our load.

We got as far as Little Para – that was our object, because they had stables. So we fixed up our horses and booked in there. Well, not satisfied just to sleep there, we thumbed our way back to the city by car. We went to West Theatre and saw a World War I war film, and then we joined the last train to Gawler. We got out at Salisbury, and it was a moonlit night, and we tracked across the paddocks to Little Para and went to bed. (laughs) So we were gluttons for punishment, I think.

Now, Ray, what did the Roseworthy College display consist of for the Exhibition, can you recall that?

There were some wheat variety exhibits and there were some dairying exhibits on the composition of cheese. They're some of the exhibits; I can't recall any more of them. But there it was.

So the next day, the third day, was an easy day, just from Little Para to Roseworthy, so that was that. Now, in due course we had to go back and get the exhibits. So we did that, but having the experience of the first time we made our way from Roseworthy to the Exhibition Building on day one and loaded up and returned day two. But it was a heavy day and the horses were very tired, giving them such a big haul. I can remember coming out of Willaston and it was dark and we just let them take their own pace. And arriving back at Roseworthy, well, we handed over to other students to take the horses out because we were tired, too. They were big days.

But, looking back, that was a bit of history, wasn't it? You won't see that again.

No. No, well, you certainly won't see those sun-drenched harvest fields where Elizabeth is.

That's right, yes. There it was, yes, just open country then.

Now, Ray, just coming back again to the wine link-up with Roseworthy, your initial link-up – sorry, with the University as well – was you had the link-up with John Fornachon that had begun –

Yes.

– and John becomes the first head of the Australian Wine Research Institute –

That's right, yes.

– which is based at the Waite Institute.

Yes.

And you had an ongoing relationship with both John Fornachon and that institute, is that correct?

Yes. Yes, and also with Bryce Rankine, he comes into the scene. He was an assistant to John Fornachon when he was at the Waite Institute.

And there's another person that comes into the scene and that's Dr McCartney.

Oh, yes. Yes, that's right.

So it's quite a mix of people getting involved here, but this is some years on, of course, probably fifteen years on.

Yes.

Dr J.E. McCartney was brought to South Australia, wasn't he?

Yes, yes.

Could you tell us a little bit about him?

Yes. Wait a minute, can you pause for a moment? (break in recording) He gave me that, you see.

So, Ray, we're talking about Dr McCartney and you've brought out this volume, which is the ninth edition of *The handbook of practical bacteriology*.

Yes.

And this played a big part in your work, didn't it?

Yes, that's right. Perhaps we could leave Dr McCartney just a moment; and we're speaking of John Fornachon and Bryce Rankine, and then there were other people that helped me at the Waite Institute. (break in recording) I had great help from Dr Clarrie Piper, Dr C.T. Piper, concerning trace metal analysis, and the trace metals were an important factor in quality control in wine. Excess metals, of course – copper and iron particularly – cause great problems. So the object was to determine the iron and copper content of wines so that we knew what we could do with quality control. So Dr Piper helped me with the wet chemistry of determining these things. That involved quite an extensive process: purifying chemicals to start with, including sulphuric acid which is very hard to distil (laughs) we found out; with

doing those jobs it took me two days to do an assay, and so that was not fast enough. So I modified the procedures to a micro-method, and we could get a result in a half a day, so that was an improvement but still too slow. (break in recording)

Now, we'd got to the half a day. Yes. Now, I was still looking for a method to give us a result in short time. So I looked at emission photometry, square wave pelography[?], and they didn't meet the bill because we wanted copper and iron and lead. And you might wonder why we needed a lead assay.

I was going to ask you.

Yes. Now, the reason for that was that some of our overseas customers were very strict on lead content. Now, the people of Malay, as it was then, they had big problems with lead because of the activities of their population. The Chinese women used a face powder which contained lead. The workers at the tin mines handling the ingots, the ingots had a lead impurity, so they had lead on their hands and, not being very fussy about eating, they would eat without washing their hands so there were lead problems. Lead capsules were a bit of a problem to them. So, realising that we had to give them assurance that our wines would comply with their requirements of a half a part per million – what's that, .5 milligrams per litre – we had to give them an assurance. And I thought, 'Well, if our people give that assurance, I have to see that our wines meet that standard.' So hence the search.

Well, then atomic absorption spectrophotometry, as it was called then, came under notice and I went to CSIRO[2] at Fisherman's Bend and met Dr John Willis, again taking samples with me.

Did he knock them off as well?

(laughter) Oh, no – – –. Now, the methods for atomic absorption spectrometry, as it's called now, the methods for atomic absorption were developed by Dr Alan Walsh, later becoming Sir Alan. He was overseas at the time so John Willis took me in hand and we analysed wines for metal content and it appeared on that trial it would suit our work nicely. This was very new to the whole industry, which included mining, of course. So it was determined to procure a unit. But then you

[2] CSIRO – Commonwealth Scientific and Industrial Research Organisation.

could not just put an order in for an atomic absorption outfit and get it; there was nothing available. So we had to buy all the components from London, United States, Melbourne, all over the place. We had to buy the components and put them together ourselves. That was quite a search, but okay, it worked out all right.

The heart of the machine, the monochromator, had to come from East Germany, and this is the time of the Berlin Wall. We despaired, we wondered whether we'd ever get it out of East Germany, but we did. It arrived in Sydney and we were told it would come overland to Adelaide next week. Well, on the journey the truck was stolen (laughs) and we thought, 'Oh! We won't get our monochromator. Thieves wouldn't be able to sell a monochromator in a pub; maybe they'll throw it over a bridge somewhere and get rid of it.' But anyway, the police recovered the vehicle and the contents so we got our monochromator.

Then we had to put all this gear together, and John Willis said, 'Well, I'll come over and help you get started. So all right, we got things ready. John Willis rang and said, 'I'm sorry, Ray, I can't come.' But he said, 'Set the unit going, start everything at zero and build it up from there.' He said, 'It won't blow up.' So we did just that and we got the thing into commission. And that gave us a result from two days to start with reducing to half a day and we got a result in two minutes, so that was wonderful.

And this built on the work you'd done with Clarrie Piper, or he'd done with you?

Yes, that's right, yes. Yes, Clarrie Piper and then over to Fisherman's Bend, that's right.

And, Ray, then coming back to Dr McCartney and the AWRI[3], perhaps if you just talk about that link as well?

Yes, that's right. Now, I first met Dr McCartney at a lecture on phase contrast microscopy at one of the lecture rooms at the Institute of Medical and Veterinary Science, the IMVS. I spoke to him and he invited me to contact him at a later date, which I did. The phase contrast microscopy enabled one to observe bacteria as though they were stained. It's, what shall we say, an optical factor, an interference

[3] AWRI – Australian Wine Research Institute.

factor that shows the image quite distinctly, whereas with the ordinary light – – –. (break in recording)

So, Ray, you were talking about the refractive index.

Yes, the refractive index of the wine and the substrate is almost the same, so it's difficult to see without staining. Phase contrast introduces a new conception of being able to see without staining, which is a plus.

Can I mention the phase contrast, how it eventuated?

That would be wonderful.

Dr McCartney has described to me how the phase contrast came about. Just prior and during the World War II, the Zeiss company in Germany were experimenting with phase contrast and they had produced a model that demonstrated this and they had patented it. After the War, as war reparation, those patents did not apply to Britain, so the Vickers company took over those patents and made up their own phase contrast microscope, the Cooke, Troughton and Simms. Now, Dr McCartney had one of these microscopes and he lent it to me to evaluate it and I could see the possibility of it being very useful. So I returned that to him and procured an Italian unit, which was very good and I used that quite effectively. Then Don Ditter[?] wanted a microscope in Sydney, so I sent that one over to him. Now I had to get another phase contrast microscope.

In the meantime, the Leitz company had developed their own system. It meant that if they wanted to use the phase plate that Zeiss had developed they would have to pay their competitor a royalty. So they produced their own version of phase contrast in the nature of a special condenser, a variable condenser, which was mounted under the stage and which was quite versatile – in fact, an improvement on the original. So I had this new Leitz equipment, which was top, which was extremely good, and I used that and found some rather interesting features.

In the 1950s I noted that the acetic bacteria were surviving in filtered wine, and I was able to determine that because, following Dr McCartney's advice, I had procured a first-class MSE centrifuge, which enabled me to swing down 250ml bottles of wine, pour off the top layer and take the little bit into a smaller tube and swing again. I worked on that and found the acetic bacteria were surviving quite well in the body of the wine, which, in my book, made it a facultative anaerobe, by

definition. We usually think of it as an aerobe. Anyway, that's by the way. And I thought, 'Well, okay, that's interesting. You just put that at the back of your head and it's there.' In the mid-1980s, some researchers in California, at Davis University, they discovered exactly the same thing. (laughter) Which was rather neat; and they published that in the American Society of Oenology journal.

So, Ray, what intrigues me is that from your first student days right through your working life there was a continuum with the University of Adelaide.

Yes, that's right. Yes, that is so.

And not necessarily of anyone's making; it's just where the expertise was at the time.

Yes, that's right. Yes, that's how it worked out.

And so, in a sense, the University had a part in the history of Australian winemaking.

Yes, that is so. Yes, that's right.

And, Ray, I just was reflecting that I recall you once saying that even, I think it was in the 1940s, you actually gave a talk to the South Australian Chemical Institute –

Yes, that's right.

– at the University?

Yes, that's right – at the Lady Symon Hall.

Yes. That topic was 'Chemistry as an aid to wine-making'?

That is right. That was 1950. And Bryce Rankine was there, a young Bryce Rankine, and over all those years I could take paragraphs out of that talk and substitute that in a talk today. Take the paragraphs.

So nothing's changed, essentially.

Nothing's changed, no. That's right.

Perhaps the superficialities of equipment may have, but the essence hasn't.

Yes, that's right. When I spoke for that honorary doctorate I mentioned that I'd done that in 1950, but with the stricture of time I had to cut out some of the nice little bits, and I could have – – –. (laughs) But what I would have said there in 1950, Bryce

Rankine was in the audience and I guess he would recall that, and I could take all these paragraphs and substitute them today. But Bryce Rankine is here with us today, but I had to leave that little bit out.

I was going to come to that too, Ray, that you received the honorary doctorate from the University very recently.

Yes, that's right.

What did that mean to you, that that occurred?

Well, it was mind-blowing. I nearly fell off my chair when I read that letter, when I was acquainted of that, yes.

Well, Ray, I'd just like to thank you for being willing to talk today –

That's all right.

– about your memories.

Well, thank you very much. Look, if anything [is] of interest here, I mentioned the American Society of Oenology and Viticulture. The work I did in 1936 at the Adelaide University was replicated in the mid-1980s and published, (laughs) but more sophisticated approach; but that was rather amusing, to see these things come up – – –.

Fifty years on.

Yes, that's right.

Well, thank you very much, Ray.

END OF INTERVIEW.