

## **An introduction to the CSIRO Oral History Collection**

*Helen A. Wolff, Terence J. Healy and Thomas H. Spurling*

The authors of the above mentioned paper regret to inform that Dr Roy Green's year of birth is incorrectly noted in Table 1 as 1945. This correct year is 1935.

## An introduction to the CSIRO Oral History Collection

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This paper describes a project to record specialised oral histories of key individuals involved with Australia's principal scientific research organisation, the Commonwealth Scientific and Industrial Research Organisation (CSIRO). The oral histories are intended to complement official governance documents in a larger project to write a history of CSIRO. Oral histories typically include perspectives on family backgrounds and childhood, professional training and career histories. Of particular interest in these interviews is the involvement of interviewees in the management of CSIRO and their reflections on the place of CSIRO in the Australian and international scientific environments. The interviews were conducted mainly by two of the authors (Spurling and Healy), both of whom were well known to the interviewees because they were themselves senior managers in CSIRO and familiar with the topics discussed. These histories are intended to illuminate important personal factors that have influenced decision-making in CSIRO. Also covered are plans to use other collections of interview materials in the CSIRO History Project (CHP), including those conducted by CSIRO historian Boris Schedvin, the Australian Academy of Science and the National Library of Australia. Details are provided of preparations for interviews, recording and transcription and preparation of materials for public access through CSIROpedia.

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### Introduction

The Commonwealth Scientific and Industrial Research Organisation (CSIRO), and its immediate predecessor the Council for Scientific and Industrial Research (CSIR), have played important roles in Australian and world scientific and technological research since 1926. Initially, the emphasis of CSIR was on urgent problems of Australian agriculture. In the 1930s, the work extended into support for secondary industries. During World War 2, research expanded massively to support the Australian and Allied war effort. By the end of the war, CSIR had some 7,500 staff and the organisation was easily the most substantial entity in Australian science. Since that time, the comparative influence of CSIRO has declined relative to Australian universities but it remains the single biggest producer of Australian scientific research.<sup>1</sup>

In preparation for the one hundredth anniversary celebration of CSIR/CSIRO in 2026, CSIRO commissioned in 2016 a project to document the history of CSIRO from its creation in 1949. CSIR, formed in 1926, was the immediate predecessor of CSIRO. The CSIRO History Project (CHP) is being conducted by Swinburne University of Technology with financial and other support from CSIRO.

A vital component of the CHP is the creation of an oral history collection for enduring archival preservation to support professional historical research, with edited versions being made available for more general public access. The ongoing project captures individuals' experiences in their personal and professional lives and reflects upon their relationship with CSIRO. The CHP also

includes the collection and digitisation of all major internal governance documents created by CSIR and CSIRO. The oral history collection is intended to supplement and complement the governance collection by providing additional insight and knowledge into the organisation.

### Background

In the second and third decades of the twenty-first century there will be several anniversaries of importance to CSIRO. For example, the origin of CSIR/CSIRO was the subject of a lunchtime address by Prime Minister W. M. Hughes at the University of Melbourne on 22 December 1915. Hughes announced without prior planning or consultation that his government would support the 'idea of the national laboratory' that would undertake major projects and coordinate scientific endeavour throughout the country.

The Commonwealth Institute of Science and Industry was established by the *Institute of Science and Industry Act 1920* but was under-resourced for its task. The *Science and Industry Research Act 1926*, that established the Council for Scientific and Industrial Research (CSIR), restarted the initiative. The government amended this Act in 1949 to establish the Commonwealth Scientific and Industrial Research Organization (CSIRO).<sup>2</sup> CSIR/CSIRO celebrates its centenary in 2026 and CSIRO its seventy fifth anniversary in 2024.

The history of the formation of CSIR up to 1926 has been well documented by Currie and Graham,<sup>3</sup> and by Schedvin from 1926 to 1949.<sup>4</sup> There are also many books detailing the history and

<sup>1</sup> Department of Industry, Innovation and Science (2019).

<sup>2</sup> The *Science and Industry Research Legislation Amendment Act 1986* changed the spelling of the name, with the word 'Organization' becoming 'Organisation'.

<sup>3</sup> Currie and Graham (1966).

<sup>4</sup> Schedvin (1987).

achievements of CSIRO, its Divisions and projects.<sup>5</sup> Schedvin commenced writing an account of the first twenty-seven years of CSIRO history to commemorate the fiftieth anniversary in 1976, but this book was not completed. In collecting background material for that book, Schedvin recorded interviews between 1978 and 1987 with fifty key contributors (see Appendix A in Supplementary Material). These structured interviews were used to obtain clarity and detail on particular topics and as such would be described by oral historian specialist, Alexander Freund, as ‘researcher generated data’.<sup>6</sup> These interviews do not contain any biographical information. The analogue audio tapes and transcripts of these interviews are held in the CSIRO Archives. Many key people (see Appendix B in Supplementary Material) in CSIRO have also been interviewed as part of the Australian Academy of Science’s Interviews with Australian Scientists.<sup>7</sup> In this series of interviews, outstanding Australian scientists talk about their childhood, development of interest in science, mentors, research work, and other aspects of their careers. The National Library of Australia has also recorded many oral history interviews with distinguished Australians. Some of the interviewees include former ministers responsible for CSIRO,<sup>8</sup> CSIRO recipients of major prizes, for example, Australian of the Year recipients, and Companions of the Order of Australia. In addition, *Historical Records of Australian Science* has published many carefully researched biographical memoirs of deceased CSIRO scientists who were Fellows of the Australian Academy of Science (see Appendix C in Supplementary Material).

One of the tasks of the CHP is the preparation of material for scholars to use in writing aspects of the organisation’s history. As part of this, the project has to date collected the oral histories of fifteen key contributors to the senior management of the organisation since the late 1970s. These oral histories and those collected by the National Library of Australia are intended as primary sources for other researchers rather than as sources to answer specific research problems. Freund would classify them as ‘process-generated data’.<sup>9</sup>

### Why oral history?

Oral history is both the oldest method of historical enquiry and one of the most modern. The widespread availability of tape recorders in the second half of the twentieth century increased its use across all areas of history,<sup>10</sup> including the history of science. Doel has reviewed the oral history of American science, and notes that major

archived history projects in the history of modern science in the USA and Canada commenced in the late 1950s, and now include more than thirty-seven collections.<sup>11</sup> As Doel observes: ‘Oral history is the recording of individual memory, taken at a particular place and moment. Memories are sculptured by subsequent events, buffeted by denial and repression, hammered into self-reflective and self-justifying narratives.’<sup>12</sup> Scholars using oral histories as process-generated data need to be aware of the issues surrounding ‘memory’ and ‘remembering’ in oral history. This is well documented in papers by Portelli,<sup>13</sup> and Thomson.<sup>14</sup>

There is much literature debating whether an archival oral history collection constitutes a historical source in its own right, and about whether it can substantiate or refute other sources. Doel has observed that archival interviews ‘have transcendent value beyond providing source materials for interpreting professional issues and disciplinary developments.’ They can also offer ‘valuable insights for historians primarily interested in popular culture, labour history, and the history of women in modern society’.<sup>15</sup> Conversely, there has been much debate surrounding problems with the re-use of archived oral history archives. Gallwey’s paper warns that secondary analysis can be fundamentally flawed because subsequent users may not possess the same level of knowledge as primary researchers about the context in which the data was originally collected.<sup>16</sup>

In his book *Doing Oral History*, Ritchie states: ‘Oral history collects memories and personal commentaries of historical significance through recorded interviews.’<sup>17</sup> An oral history interview generally consists of a well prepared interviewer questioning an interviewee and recording their exchange in audio or video format’. This is the process used in this project.

Oral histories also provide the benefit of preserving valuable information and observations that would not normally be documented. As Weiner notes: ‘First person testimonies can provide a valuable supplement to the extant written record to document how science managers actually spend their time... advising, administering, patenting, consulting, and research’.<sup>18</sup> Additionally, the spontaneity, sarcasm, irony, laughter, silences, tone, emphasis and accent in each voice are captured in the audio recording adding depth and meaning to the interview.

### Selection process

Unfortunately, many early contributors to CSIRO are no longer with us. The initial interviewees were selected from a list of those

<sup>5</sup> <http://csiropedia.csiro.au/published-histories/>, viewed 11 October 2018.

<sup>6</sup> Freund (2009).

<sup>7</sup> <https://www.science.org.au/learning/general-audience/history/interviews-australian-scientists/>, viewed on 29 October 2018.

<sup>8</sup> <http://www.nla.gov.au/oh/>, viewed on 20 January 2019.

<sup>9</sup> Freund (2009).

<sup>10</sup> Gallwey (2013).

<sup>11</sup> Doel (2003).

<sup>12</sup> Doel (2003).

<sup>13</sup> Portelli (1998).

<sup>14</sup> Thomson (2011).

<sup>15</sup> Doel (2003).

<sup>16</sup> Gallwey (2013).

<sup>17</sup> Ritchie (2014).

<sup>18</sup> Weiner (1988).

**Table 1. Interviewees and interviewers**

Interviewer 1 is T. J. Healy, interviewer 2 is T. H. Spurling and interviewer 3 is H. G. Upstill

Interviewee and year of birth	Highest positions held at CSIRO	Interviewers
Dr Colin Adam (1943)	Deputy Chief Executive (1996–2000) and Acting Chief Executive (2000–2001)	1,2
Professor Michael Barber (1947)	Executive Director, Science Planning (2002–2006), Group Executive, Information, Manufacturing and Minerals (2006–2007)	1,2
Dr Keith Boardman (1926)	CSIRO Chairman and Chief Executive (1985–1991)	1,2
Dr Joanne Daly (1953)	Chief of the Division of Entomology (2003–2007) Group Executive, Agriculture (2007–2010)	1,2
Professor Annabelle Duncan (1953)	Chief, Division of Molecular Science (1999–2005)	1,2
Mr Paul Grant (1934)	Officer in Charge, Commercial Group (1978–1984)	1,2
Dr Roy Green (1945)	Director of the CSIRO Institute of Natural Resources and Environment from (1988–1995), Chief Executive (1995–1996)	2
Dr Tony Gregson (1945)	CSIRO Board member from 1986–1995	1,2
Dr Beth Heyde (1940)	Principal Secretary (1987–2002)	1,2
Professor Peter Robinson (1935)	Chief of the Division of Manufacturing Technology (1990–1995)	1,2
Dr Ron Sandland (1947)	Chief of the Divisions of Mathematics and Statistics (1988–1995), and Mathematical and Information Science (1995–2000), Deputy Chief Executive (2000–2008)	1,2
Professor David Solomon (1929)	Chief of the Division of Applied Organic Chemistry (1974–1986) and Chemicals and Polymers (1988–1989)	1,2
Professor Tom Spurling (1940)	Chief of the Divisions of Chemicals and Polymers (1989–1996) Molecular Science (1996–1998), CSIRO Board Member (2008–2015)	1,3
Dr John Stocker (1945)	Chief Executive (1990–1995), Chairman of the Board (2007–2010)	1,2
Professor Paul Wellings (1953)	Chief of the Division of Entomology (1995–1997), Deputy Chief Executive (1999–2002).	1,2

still available that had been previously considered by the CSIRO History Project Steering Committee. These are some of the key individuals who helped shape the development of CSIRO from the late 1970s (Table 1). They were also selected for their importance in the role of governance at CSIRO and their relationship with the Australian government.

The interviewees were contacted and asked if they would take part in the project. If they agreed, they were sent a letter of invitation and a rights agreement to complete and sign. Agreements are in accordance with the ethics approval previously given by the Swinburne Human Research Ethics Committee. Only one of the interviewees had worked for CSIR. He is Dr Keith Boardman who joined CSIR in 1949 as a Research Officer, and left CSIRO as the Chief Executive in 1990. Eight of the interviewees (Boardman, Daly, Duncan, Robinson, Sandland, Solomon, Spurling and Wellings) worked for the organisation as research scientists before taking up senior management positions. One (Heyde) came into the organisation as senior policy advisor, one (Grant) as a patent attorney and the other five were recruited to senior management positions from outside CSIRO. All had made distinguished contributions to their discipline before embarking on a management career.

## Background research

Background research is essential to collecting the depth of information needed for good oral history. Sommer and Quinlan note that ‘research helps define the project, provides background on topics to

help explore them further, helps project leaders determine which topics are most important, suggests additional topics, and provides background information to inform the interviewer so they will be prepared as possible for the interview’.<sup>19</sup>

With written approval from each interviewee, the project team acquired the interviewee’s Personal History (PH) file from CSIRO Records. The CHP team prepared for each interview by studying, along with this file, relevant articles from *CoResearch* (the CSIRO staff newsletter),<sup>20</sup> CSIRO Board and Executive minutes and other sources. The PH file provides a contemporaneous record of the interviewee’s employment history and typically includes job application information including job advertisement, letter of application, biographical information, referees’ comments, recommendations to appoint and letters of promotion. Where applicable, the file also contains fellowship nomination letters and details on publications authored since joining CSIRO.

## The interviews

The first round of interviews was conducted by the CHP team between January 2017 and February 2019 throughout Australia. The three interviewers were T. J. Healy, T. H. Spurling and H. G. Upstill. There were two interviewers in all but the Dr Roy Green interview (see Table 1). In all cases the interviewers were known to the interviewee. Healy had joined CSIRO in 1970 as a patent officer in the CSIRO Head Office and been promoted to General Counsel in 1985. He provided legal and governance advice to all of the interviewees during the course of his career. He was the CSIRO

<sup>19</sup> Sommer and Quinlan (2002).

<sup>20</sup> <https://csiropedia.csiro.au/coresearch-csiro-staff-newspaper>, viewed on 14 December 2018.

**Table 2. Sample interview topics****Interviewee's early life, education and career**

- Family background
- Primary, secondary, tertiary education—including awards
- Employment sequence—early to late
- Career advancement
- Contributions to science, technology and technology transfer
- Professional activities (AAS, AATSE, RACI and others)
- Post-retirement activities

**Interviewee's relationship with CSIRO**

- Listing of interviewee's roles with CSIRO—formal and informal, with dates
- General impressions of CSIRO, over time
- CSIRO's scientific research—priorities, quality, timeliness
- CSIRO's technology transfer—effectiveness, counter-party issues, disputes
- CSIRO's treatment of research staff—recruitment, promotions, training, termination
- CSIRO's treatment of support staff—recruitment, promotions, training, termination
- CSIRO funding—adequacy, availability of flexible arrangements, income retention
- CSIRO's physical facilities—laboratories, equipment (major and minor)
- CSIRO's policy involvement—support for government policy-making, impact on CSIRO of government policies, general policies of CSIRO
- CSIRO collaborations—universities, industry, other PFROs and CRCs—effectiveness

lawyer prosecuting the Wi-Fi litigation, 2005–15. Spurling joined CSIRO in 1969 as a research scientist in the Division of Applied Chemistry. He was Chief of the Division of Chemicals and Polymers, 1989–98 and a member of the CSIRO Board, 2008–15. Upstill was an advisor on planning and policy in the CSIRO Head Office, 1989–2001, and worked with Spurling on strategic planning issues. He is the co-author of two papers with Spurling on the recent history of CSIRO.<sup>21</sup>

The interviews were semi-structured and covered the interviewee's childhood, education, contributions to science as well as their contributions to the management and evolution of CSIRO. Interviewees were also invited to comment on the role of CSIRO in the modern national innovation system. Table 2 shows a sample of interview topics. The topics covered are similar to those required to be addressed by authors of the Australian Academy of Science's biographical memoirs. These were customised into a running sheet and used as a framework for the interview. The running sheets for the early interviews were not as detailed as for the later interviews. As an example, the questions used for the interview with Dr John Stocker are shown in Appendix D (Supplementary Material). The running sheet is stored with each interview and is available to researchers.

### Recording and transcription

Two Olympus voice recorders were used to provide security against technical failure and interviews were recorded digitally in WAV format at the high-resolution archival standard of 24 bit 96 kHz.<sup>22</sup> Where possible, a sound booth was used for the recording of the interviews. Audio files were sent to a commercial transcription service in Australia for transcription. Transcripts were edited lightly by the project team and then made available to interviewees for

approval and/or correction. Once the transcript was finalised, the audio files were post-produced using the open-source Audacity software.

In accordance with the rights agreement, each interviewee has approved in writing the publication of both their audio recording and transcript on CSIROpedia. Note that the audio recording is the primary source. The transcript is useful as a finding aid.

### Using the collection

Doel observed that archival interviews 'are valuable (and sometimes unique) sources of information about the early lives of scientists, hierarchical relationships between individuals in complex bureaucratic organizations, and the traditionally invisible members of scientific communities: women, minorities, engineers, and technicians'.<sup>23</sup> They provide insight into shared professional identities, patterns of funding ... and the cultures of research communities.

As noted above, the aim of the CSIRO Oral History Collection is to create primary sources for researchers of the history of CSIRO to use as process-generated data rather than to answer particular research questions. Our aim in this paper is to introduce the CSIRO Oral History Collection to scholars interested in the history of CSIRO in particular, and Australian science in general, rather than to present a detailed analysis of the interviews. The following four sections show the variety of insights available from the collection.

#### *Social origins of scientists*

As Doel notes, questions about an interviewee's 'early childhood, initial experiences with popular science or technology, family background, recollections of major national events, and contacts with local or national patrons for science (as many do) illuminate

<sup>21</sup> Upstill and Spurling (2007). Upstill and Spurling (2008).

<sup>22</sup> Bradley (2009).

<sup>23</sup> Doel (2003).



important and largely unexplored dimensions of scientific activity'.<sup>24</sup>

Of the fifteen individuals interviewed, four were born before the Second World War, six during the war and five after the war. Twelve were in the first generation of their family to be university educated. Professor Michael Barber was one of three exceptions, coming from a family academic tradition spanning several generations:

I had an interesting pair of parents. I am a second-generation university educated Australian. For someone of my age, that's a fairly unique perspective. My father ... was educated in the United Kingdom. He did a first degree at Cambridge, and then a PhD at the John Innes.<sup>25</sup>

All interviewees had some overseas experience for their first research degree, their post-doctoral work or for employment. All could discuss in detail their scientific work, including the information that led to their scientific decision making. Most had successful scientific careers before going into management roles. Their recollection of management decisions was less precise. Possible reasons for the unevenness of these recollections may be due to the fact that management decisions are often based on sparse information sets, or because many more people are involved in management decisions. It may also be an example of Thomson's observation that 'an experience is much more likely to be remembered if it is perceived to be significant (worth remembering) and is therefore articulated into a memorializing form, most typically a story'.<sup>26</sup>

#### *Early influence of teachers*

For all of the interviewees, the impetus to become a scientist came from inspiring individuals who introduced them to a new and exciting world of science. All could identify a primary or secondary school teacher who had been influential in their selection of a career in scientific research.

Former chief executive, John Stocker recalled:

Two science teachers had a big influence on me, one was Ken Merry ... he was an inspirational physics teacher, and Mr Guess was another great influence. When I got first class honours in chemistry at matriculation level Mr Guess wrote me one of the funniest letters I've ever had because he said what a massive surprise it was to him, which wasn't terribly reassuring but it was good enough to get me into medicine.<sup>27</sup>

Former CSIRO board member, Tony Gregson stated:

My teacher of mathematics and physics was a Lithuanian refugee called Kostas Rind ... he was a fluid dynamicist and he told me once that he developed a whole lot of fluid dynamics of German U-boat conning towers and so on, had to redesign them to make them go better through water. But he escaped and ended up in Australia.<sup>28</sup>

Former Deputy Chief Executive, Paul Wellings stated:

It was a selective grammar school ... and science was very important at the school. There were separate streams in advanced maths, maths, chemistry, biology ... If you looked at the staff list every single person had been to university who were teaching, they were all specialists in their subjects, and a man called George Briggs was head of biology.<sup>29</sup>

Former Deputy Chief Executive, Ron Sandland stated:

He [John Robson] started teaching me calculus in fourth year of high school. He gave me special problems and he made me feel great about my ability to do hard mathematical problems. He used to say to me things that were very good for the ego like, 'Don't bother doing the ordinary questions son, just do the starred ones at the end' and he said, 'Don't spend too much time on this question' but I did and I basically got it out and he looked at my solution and said, 'That's fantastic son, I've been trying to get that out for 10 years.' So that was ... huge.<sup>30</sup>

Former Principal Secretary, Beth Heyde recalled: 'Stumpy Russell was a great teacher. One day we were talking about permutations and combinations, and I remember getting quite a thrill out of it'.<sup>31</sup>

#### *Science to management*

Of all the interviewees, only two (Paul Wellings and Beth Heyde) purposely chose to move to a management position. On her aspiration to move to the public service, Heyde commented: 'all I've done is test-tube stuff, they're not going to take me seriously. I had better get myself some other qualifications ... so I decided to sign up for a graduate diploma [in administrative studies]'.<sup>32</sup>

John Stocker stated that he acquired his management experience from his time at Hoffman-La Roche:

that was a tough transition because I had a lab which was pretty active and was doing interesting things and I really enjoyed the hands-on daily looking down the microscope and doing tissue culture work, but by the time my career at Roche rose at a rate that nobody, and particularly I, wouldn't ever have predicted and suddenly I was in charge of initially 20, then 100, and then 1,000 people as director of research and of course there was no way that one could continue to pretend that one is doing anything useful with a full day of personnel matters and securing the funding and assets which were necessary to nurture a scientific effort, and so really from that moment to the rest of my life I haven't done any significant original science.<sup>33</sup>

For the other interviewees, the scientist-to-manager transition came on quite unexpectedly and often informally. As Tom Spurling noted: 'when Dave Solomon needed to spend more time on the bank project he thought he needed to have an assistant chief and so when you say I applied for the job, I didn't apply for the job, he called me

<sup>24</sup> Doel (2003).

<sup>25</sup> Spurling and Healy (2017d).

<sup>26</sup> Thomson (2011).

<sup>27</sup> Spurling and Healy (2018a).

<sup>28</sup> Spurling and Healy (2017a).

<sup>29</sup> Spurling and Healy (2018b).

<sup>30</sup> Spurling and Healy (2017b).

<sup>31</sup> Spurling and Healy (2017c).

<sup>32</sup> Spurling and Healy (2017c).

<sup>33</sup> Spurling and Healy (2018a).

into his office one day and said, ‘I want to appoint you as the assistant chief’ and I said, ‘I’ll do that.’<sup>34</sup>

Many interviewees highlighted the importance of CSIRO’s management development programmes in facilitating that scientist-to-manager transition.

### The place of CSIRO in modern Australia

At the conclusion of each interview, the subject was asked whether Australia still needs CSIRO. Most agreed that Australia does, but it was not without caveat:

Paul Grant stated:

I would have a government research organisation dealing with the public good if you like, rather than trying to build up industry. I would be—I mean for Australia, if Australia’s not going to set broad priorities or not going to get behind like Finland got behind Nokia and so on and Sweden of course got behind ASEA and all that—and deliberately so. But we won’t even get behind BHP. It’s a tragedy. But if that’s the way the country is then we need a research organisation to do the public interest work that[.]<sup>35</sup>

Peter Robinson responded:

That’s a very difficult question to answer off the cuff. I think you would have something like CSIRO, whether you would have CSIRO in its present configuration, the structure I’m not sure. I think there still needs to be a greater integration of effort between all the relevant sectors. So I still see a bit of fragmentation between government agencies, and I don’t think there’s a lot of competition, but there’s some duplication, and there’s still a lack of connectivity, if you like. I think if you were starting from scratch you would configure CSIRO in somewhat of a different way and I’d like to see a lot more activity in economics, in market dynamics, and the key discipline areas which interact with scientific investigation and innovation and application being an integral part of the activities.<sup>36</sup>

John Stocker stated:

I think you would need an at large respected group that was likely to survive the very short-termism that drives governments, and CSIRO is a nice buffer for its great people against the whims of fickle government change, so yes, I would have a structure like CSIRO. It would be structured in a way that would enable the best of its science to work across disciplinary boundaries, and we’ve already in this interview described a few attempts going back to the nineties and continuing to this day to do that. It would need to avoid the sort of destructive influences that have happened to other national research agencies like the DSIR in New Zealand which was rent asunder in the nineties I think to the continuing detriment of New Zealand and New Zealand science, and it would be outreaching and doing all it could to explain to the public why it was important because what the public thinks determines the votes, what the votes do is choose the parliamentarians and the parliamentarians have to be there to defend the organisation.<sup>37</sup>

Michael Barber stated:

I suspect the answer to that would be, no. But that doesn’t, imply that having got CSIRO, it should not exist. I guess my no is because I just can’t quite see the political context that would drive such a development. We have a much more mature university sector with a very strong research capacity than when CSIRO was established. To establish a CSIRO-like body, today, would be such a significant policy initiative that probably needs a crisis of some scale. Well, put it this way: if Australia faced such a crisis, we’d probably have bigger problems than just what was happening to the science system. That said, CSIRO is still, from my perspective, an organization of considerable assets, of considerable skills and with a remarkable history; not all of which should be assigned to history. I think some, may be a lot of it should be assigned to history, but not all. Finding its role at the moment, I think, is a challenge for both CSIRO and other institutions.<sup>38</sup>

Annabelle Duncan added:

I think universities have a slightly different mission. I do think that the research is an important part of it, but the research also forms part of the teaching of the university, and so that teaching and education of the populations—I was going to say the next generation, but it is no longer that because it is all generations now—is very important. I think having an organisation that devotes itself solely to the research, that has the global links in a way that maybe universities tend not to quite the same, I think that is really important, and I think it would be a loss to Australia if we lost CSIRO completely.<sup>39</sup>

### Publication

As at May 2019, fifteen interviews have been published (around fifty recorded hours) averaging three hours each. Interviews were generally recorded over a single session although earlier in the project some interviews were recorded in two sessions while the project team was still refining interview techniques. At the request of an interviewee, one interview was re-recorded. The audio recordings and transcripts are currently available via CSIROpedia,<sup>40</sup> a website highlighting CSIRO’s greatest innovations and discoveries across the decades and brief biographies of the people responsible. The interviews may also be accessed via the National Library of Australia’s Trove website.<sup>41</sup>

From each interview, users can also find the interviewee’s personal biographies, photographs and links to other resources helping to provide context for each scientist’s life and work. More interviews will be added as they become available.

### Future plans

Taking a cue from the Australian Generations Oral History Project,<sup>42</sup> the next phase of the CSIRO oral history project will be to enrich the user experience by offering synchronised transcripts so

<sup>34</sup> Healy and Upstill (2017).

<sup>35</sup> Spurling and Healy (2018d).

<sup>36</sup> Spurling and Healy (2018c).

<sup>37</sup> Spurling and Healy (2018a).

<sup>38</sup> Spurling and Healy (2017d).

<sup>39</sup> Spurling and Healy (2019).

<sup>40</sup> <https://csiropedia.csiro.au/>, viewed on 18 October 2018. Some editing of the transcripts, including additional material in the form of footnotes and endnotes, occurred at the request of some interviewees.

<sup>41</sup> <https://trove.nla.gov.au/>, viewed on 19 October 2018.

<sup>42</sup> <http://artsonline.monash.edu.au/australian-generations/>, viewed on 14 October 2018.

that users can listen to the audio and view the verbatim transcript at the same time. In addition, future users will also have the option to search for words or phrases that appear in a transcript and then click to jump to that part of the audio.

A further ten interviews are scheduled to be recorded over the next twelve months. The next series of interviews will most likely include some 'outsider' views. For example, former ministers, senior public servants and chief scientists who had to work with CSIRO.

All materials relating to each interview, and the outputs of the CHP as a whole, will be made available to the CSIRO Archives and the National Archives of Australia.

### Concluding remarks

This paper introduces the CSIRO Oral History Collection and the methods that have been followed in creating its interviews. The paper also introduces scholars of the history of Australian science to the insights and information that are available in the CSIRO Oral History Collection. These materials will be made available progressively to professional historians and to members of the public. Where possible, materials will be electronically searchable by users to improve the experience of researchers. Techniques for improving online searchability will continue to be developed.

The oral histories will form a vital component in a growing set of complementary historical records, including source documents from the governance records of CSIR and CSIRO. The aim of the CSIRO History Project is to have a comprehensive set of research materials publicly available by 2026, the centenary of the formation of CSIR/CSIRO.

### Conflicts of interest

The authors declare no conflicts of interest, but it should be noted that one author (Spurling) was also an interviewee.

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