

# The Heritage In People: Oral History In Engineering

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**Summary:** People now 60 years and older, have been part of the greatest technological and social changes of all time. Through oral history we have the opportunity to hear them talk about their experiences and the events they were involved in, to have them share their knowledge and wisdom with us, and to learn the real stories behind events, inventions and discoveries.

Their lives and what they can tell us are as much a part of our heritage as the Sydney Harbour Bridge, and are the potential source of the history yet to be written. By recording their stories, we have a chance of making that history not only more accurate and complete, but more revealing, intimate and human.

The purpose of this paper is to encourage the oral history recording of engineers, to describe what it entails and how it might be done.

Whilst the task of preserving the heritage of people's minds is the prime objective of oral history, it is an immensely rewarding and enriching experience for all involved.

## 1 INTRODUCTION

If we consider the events of the last say 50 years, men and women now 60 years and older have been involved in the greatest technological and social changes the world has ever experienced; and engineers have been major players.

Within the engineering profession resides a wealth of knowledge, experience and accomplishment, which must be preserved for posterity as part of our national heritage. Oral history allows us to do this - to record the achievements and experiences of the people who have built and are building Australia. In doing this, we create a data base of both engineering and social history of inestimable value to researchers, biographers, journalists and the makers of "talking history" programs.

Some idea of the treasure house of oral history can be gained from just a few of the interviews recorded by Sydney Division of The Institution. There is the designer of Sydney Tower; people involved in development of the first major wind tunnels and the first computers in Australia; the developer of innovative sand and gravel pumps; a former Governor of NSW who is also an aeronautical engineer; men who established consulting practices which became household names in the industry; a man who worked with Freysinnet before prestressing started in Great Britain (let alone Australia); people who were major players in the Snowy Mountains Scheme, the Eastern Suburbs Railway, Government engineering authorities and large construction companies; an eminent

Energy Commission's Research Establishment at Lucas Heights; leading academics in various fields including architectural and design science, and so on

Of course, oral history interviewing is always urgent, as every day we risk losing important material through the death, incapacity, or inaccessibility of potential interviewees.

**It is always too late to start oral history, but never too early!**

Another dimension of urgency and importance arises because the written record of yesteryear - the reports, memos, letters etc. is being rapidly superseded by telephone messages, e-mail and computer memories. The tendency is for all these to be lost or destroyed soon after the decision has been made, or the task completed.

**The story of engineering lies in the minds of those who did it - it is part of our heritage and we cannot afford to lose it.**

## 2 WHAT IS ORAL HISTORY?

Historians, biographers and archaeologists, will all testify to the difficulty of determining after the event, exactly what happened, who did "it" and why, and why "it" was done in a certain way. The answers to these and many other questions have to be laboriously researched and the information pieced together, to produce what may only be an incomplete best assessment. Too often, adequate and balanced records were not kept, records were "sanitised", falsified or destroyed, the people involved have passed on, and perhaps an object of interest has itself been destroyed or radically modified.

Through oral history we can hear the evidence from the people involved, about changes in social attitudes, in technology and methodology and we can learn why they occurred and who was responsible. We can find out what generally won't be in the files and the history books - the real reasons things happened, the names of those actually responsible for things like innovations and important changes.

Oral history is told by the people who were there, who made it happen, who were affected, and we hear it in the colour, passion and inflection of their own voices.

*Oral History is a picture of the past in people's own words. It is a living cultural and political force ...*<sup>1</sup>

Events are often influenced by personal prejudices and ego, by animosities, politics, ignorance, the state of a person's finances, their health (even of their love life), the weather, accident, perhaps even what they had for breakfast - anything which has bearing on their well being, comfort and emotional state. Rarely will you find these intimate details in written history. However, in oral history we have the chance to be privy to such driving influences, rather than having to rely on the sanitised (or assumed) version, which may attribute all actions to lofty ideals, knowledge of the facts and careful analysis!

Oral history is about what we believe to be the real story. Even if our version of an event differs from another's, theirs is not necessarily the valid one. We all have different perceptions of events, some of us may even have inaccurate or biased recall, but that is part of being human - it is part of oral history. The differences provide the balance - Vive la Difference!

### 3 OBJECTIVES OF ORAL HISTORY

The prime purpose is preparation through voice recording, of a biographical account of the work history of eminent engineers, and the historically important experiences of others. The objectives for this purpose are therefore to:

- Record in their own voices and words, the work history and experiences of eminent and historically important engineers, and of others who have had engineering experiences of historical interest and of interest to posterity.
- Ensure conservation of the material created as part of the Nation's engineering heritage.
- Encourage use of the material to promote the engineering profession and its contribution to society.
- Creation of an oral information database and, subject to any limitations imposed by the interviewee, make the material freely available to libraries and all those with a bona fide interest/purpose such as authors, journalists, researchers, historians and biographers.

In preparing for the interview, interviewees and interviewers, often make notes and obtain material from other sources such as *Who's Who in Australia*. This material together with the voice recording, is ideal for the preparation of a brief biography, and the interview meeting can be an opportunity for elaboration and clarification. Consequently, a further objective might be:

- Assist in the preparation of a brief biography of the interviewee.

Another use for oral history is in the preparation of an oral account of an event, the construction of a work, the development of a technology and so on. Many such programs about social happenings and circumstances have been made by the Social History Unit of the Australian Broadcasting Commission and are broadcast from time to time. The story is told through comments, descriptions, anecdotes etc., by participants, linked with narrative by an announcer, often with some music accompaniment. Apart from being fascinating listening, they make an important contribution to the historical and cultural record.

The NSW Public Works' Oral History Program concentrates in this area. It has produced program tapes dealing with the restoration of stone buildings in Sydney (*Monoliths and Masons*); the development of sounding technology (*From Lead Line to Sonar*); a history of the development of demountable classrooms; establishment of a landscape architecture capability (*Living Spaces*); restoration of public buildings after the Newcastle Earthquake; Water Supply and Sewerage in Country NSW and so on.

So one further objective could be to:

- produce a "story tape" - an oral account by the people involved, of an event, an activity, or some occurrence of cultural significance.

### 4 POLICY AND PROCEDURES

It is important there be a disciplined approach to the conduct of an oral history program or project. This means having objectives, policies and procedures about a whole range of things such as:

- purpose of program or project, and desired outcomes;
- preparation, prioritising and maintenance of an interview master list;
- initiation and conduct of interviews including obtaining a release document, and post interview action;
- keeping records including release documents, logs, biographical and background material and the maintenance of a register of interviews;
- storage and care of tapes, transcripts, logs and biographical material and their ultimate destination such as the State Library;
- inclusion of biographical information on Members per-sonal files in the National Office of The institution of Engineers;
- publicising the tapes for use by researchers, biographers, journalists, historians etc.

## 5 WHOM TO INTERVIEW AND WHEN?

Identification of people to interview can come from many sources such as word of mouth, advertisement, committee brainstorming and lists of people over a certain age say 55 or 60. Lists can become unmanageable in size and so culling and prioritising will be necessary (e.g., as at July 1995, there were 2934 Members in Sydney Division aged 55 and over).

The potential cost of the Program and the logistics of managing it, mean that everyone cannot be interviewed. Culling and prioritising should have regard to factors such as:

- age;
- health;
- availability;
- eminence;
- significance of experience;
- urgency in the need for information.

The objective should be to interview when people are in their prime, and before their memory begins to fail and their interest to wane. This will vary considerably between individuals. Whilst bright and lucid 80 and 90 year olds have been interviewed, a good rule of thumb is to interview before say age 70.

Quite obviously, if one were wanting to tell the story of an event, or construction of a work, the interviewing should be done either progressively, or as soon as possible after completion before the people involved pass from easy reach. In producing such programs, it is only necessary to interview those having

involvements essential to the story - it is not necessary to interview everyone involved with the project.

Of course interviewing should not be confined to the engineers. I'm sure all would agree they learnt a lot of wisdom (and humility) from foremen, labourers, tradesmen, plant operators, draftsmen, timekeepers etc. Their version of events will often be surprisingly different from the boss's - things look a lot different peering up against the light from the bottom of a trench, when you're in a foot of mud and water is dripping down your aching back!

## 6 PREPARING FOR THE INTERVIEW

The preparedness of a person to be interviewed can generally be established by telephone. Once agreement has been reached, a letter should be sent thanking them, advising of arrangements and telling about oral history and what they can expect. A handout pamphlet explaining what oral history is about and addressing the concerns generally held by interviewees, is a useful device.

There can be considerable value in a pre interview. The object is to:

- establish a comfortable relationship with the interviewee;
- make notes of the subject matter to be covered;
- design the interview having regard to the logic of the in interviewee and their preferred method and sequence of telling their story;
- suggest suitable arrangements for the interview, if it is to be in their home.

However, care is needed to avoid the interviewee getting too enthusiastic and giving the detail of the actual interview. If this happens, the interview itself can be an anti climax and the desired spontaneity lost

When a professional interviewer is involved. the cost of a pre visit may be out of the question. In these cases, a brief resume provided by the interviewee, together with information which might be available from other sources, such as *Who's Who In Australia*, can be used. The interviewer should then be careful to spend adequate time before the interview actually commences, getting to know the interviewee and tailoring the interview to their needs.

## 7 ART OF INTERVIEWING

There are lots of publications about oral history and its applications. As a basic text, few are better than the Oral History Association's Oral History Handbook, which gives excellent advice about aims and objectives, how to go about interviewing, interviewing techniques, transcribing and so on.

The Association also runs seminars and training courses for interviewers at reasonable prices.

Interviewing is a skill, but it can be learnt. Of course as with all skills, some people are "naturals" and others develop various levels of proficiency with training and experience.

Primarily, interviewers need to be:

- interested in people;
- patient;
- prepared to do their "homework: i.e. prepare for the interview;
- good listeners.

Interviewing for oral history is different to other types of inter-viewing. The subjects are usually older people, sometimes with slightly hazy memories (particularly for dates and figures and possibly for names) and some may be quite apprehensive about the experience. Important are patience, good listening skills and careful preparation - reading the resume, deciding on information to be sought, framing questions etc.

Gentle probing for more information or for explanations may be required at crucial points, particularly with engineers who could lapse into jargon, use acronyms, or who may assume a general knowledge of the subject under discussion.

Questions should generally be open-ended - they should encourage the interviewee to speak freely and to volunteer information. If questions which merely elicit "yes" or "no" answers are asked, the interview may not only deteriorate into a dull question and answer session, but vital information will often be missed.

Too much direction on the part of the interviewer can affect an interviewee's flow and recall. The interviewer should guide, but where it suits, allow interviewees to tell their story in the manner and sequence appropriate to them. The order is less important. than ensuring the whole story gets told. This requires concentration by the interviewer, to ensure incomplete accounts are revisited and tidied up.

*There are obvious errors to avoid when interviewing, such as dominating the interviewee, not following up with 'probe' questions at crucial points, debating or arguing with the interviewee, asking too many questions at once, asking questions which are imprecise, being clever and making the interviewee feel inferior, pressing the interviewee for more information on a topic which obviously distresses them, not listening to what is being said and then asking a question to which the answer has already been given.<sup>1</sup>*

Other errors: include intruding one's own knowledge and experience into the interview; and the often unconscious use of mannerisms such as "yes", "go on", "mmm". Such mannerisms reduce the value and usefulness of tape, particularly when segments are required in the building of a story for broadcast. Encouragement through good eye contact and nodding are appropriate substitutes.

As obvious as these errors are, avoiding them, particularly when you are familiar with the topic, needs care and practice. Training, critical appraisal of interviewing style and careful selection of interviewers (particularly when payment is involved and/or the interview has special significance) is therefore essential.

After the interview, it is important to take time for a chat - this is both a courtesy and an opportunity. The aim is to help the interviewee wind down, to uncover missed information, to determine whether a further session is needed, to identify other people with important stories to tell and so on.

Finally, a letter of thanks should be sent, acknowledging the interviewee's co-operation and the value of their contribution.

## 8 RELEASE DOCUMENTS

A legal release is an essential part of oral history. It is required to clearly establish the rights of the interviewee and to protect The Institution against future claims. It will authorise use of the material in accordance with the objectives of the Program and subject to such limitations as the interviewee may impose. As it may place obligations on The Institution with respect to use of the material, a copy must always accompany the tapes and be passed on as part of the package, when tapes are being lodged with libraries or accessed by researchers etc.

The document, signed by the interviewee and countersigned by the interviewer is generally completed at conclusion of the interview. A copy should be left with the interviewee.

A separate release must always be completed by volunteer interviewers, as they become part owners of the copyright.

## 9 PROFESSIONAL INTERVIEWERS

Engagement of a professional interviewer is tantamount to entering into a contract and should be

treated as such. Consequently, they should be issued with a letter of engagement:

- defining the task (purpose of interview);
- providing name, address, telephone number and any background information on the interviewee;
- stipulating:
  - \* materials to be supplied by interviewer;
  - \* completion of a release document by the interviewee;
  - \* material to be provided to interviewee;
  - \* outputs required and delivery requirements;
  - \* time for completion;
  - \* fee and method of payment;
- identifying the supervisor of the commission.

## 10 VOLUNTEER INTERVIEWERS

Use of professional interviewers can help assure a quality product. However, it is costly and where funds are scarce, can severely limit the numbers of interviews. Volunteers can be an acceptable alternative, provided they have the requisite attributes and are suitably trained.

Volunteers without a technical background, may not identify when there is need to seek elaboration or explanation of technical matters or terminology. Engineer volunteers should be able to do this. However, during training they need to be cautioned against the temptation of intruding their own experiences into the interview - of getting involved in the story.

## 11 TRANSCRIBING AND LOGGING

Obviously the value of a set of tapes and the extent to which they will be used, will be significantly diminished if their content is not known.

Transcribing i.e. making a verbatim typed record of the interview, whilst having superficial appeal and some value, is quite costly.

"Logging" of tapes is much less costly and is virtually essential for their future use, particularly by researchers. Logging involves preparing an index by listening to the tapes and noting the subjects discussed in sections, as defined by the tape counter. There is advantage in it being done by the interviewer soon after the interview, as they have the advantage of knowing what was said, in case there is some confusion or where a voice or pronunciation is indistinct.

## 12 QUALITY OF RECORDINGS

The aim should be to produce broadcast quality tapes. This entails the use of appropriate quality equipment, ensuring proper recording sound levels, avoiding extraneous noise etc.

As soon as possible after the interview, copies of the tapes should be prepared and the originals stored and preserved under proper conditions. Only copies should be used for logging, listening and so on.

## 13 STORAGE AND CARE OF TAPES

The primary objective of oral history is to record the heritage of people's minds - their own history, knowledge, thoughts and experiences. This is far more fragile and transient than the concrete and steel of the built environment. Proper care and conservation of the tapes is therefore essential.

Whilst some tapes in archives are still playable after 40 years or so, tapes can fail in less than ten years as a result of chemical instability and inadequate storage or handling. Consequently, the following precautions should be observed:

- don't handle the playing surfaces;
- store in cool, dry, clean conditions, free from pollutants;
- avoid direct sunlight, local heat sources, moisture, dust, magnetic fields and sudden changes in temperature or humidity;
- store upright on sturdy shelves or in boxes with dividing supports every 100 - 150 mm;
- ensure cassettes are kept in boxes which have projections to lock tape hubs.

## 14 AVAILABILITY AND USE

Like all knowledge, the great store of data produced by oral history programs will have no value if locked away in filing cabinets. It must be used and made available to historians, biographers, researchers, journalists and the producers of "talking history" programs.

## 15 THREE BIRDS WITH ONE STONE

Proper care, and ensuring availability can be achieved by lodging the tapes with a library that has a special oral history collection like the State Library of NSW and the National Library, Canberra. One aspect of a library's business is conservation. The co-operation nowadays between libraries should ensure existence of the tapes can easily be identified, through their combined cataloguing systems.

The third advantage is, that as Oral History Librarians network with each other, and with the oral history movement, they can keep abreast of relevant new technology and transfer taped material to a more permanent medium, when it becomes available.

## 16 PUBLICITY

Notwithstanding library cataloguing and publicity, the tapes should be publicised from time to time by publishing lists and printing articles about the program in newsletters.

Copies of the Interview Register, together with a contents summary or log of each tape, should also be provided to organisations such as Australian Dictionary of Biography, Oral History Association, Royal Australian Historical Society, Professional Historians Association, Society of Genealogists.

## 17 PREPARATION OF BIOGRAPHIES

From time to time others and The Institution itself, need biographical information on present or past members. This may be for a myriad of reasons including historical research, obituaries and entries in publications like *Who's Who in Australia*, and *Australian Dictionary of Biography*. In many cases such information is not readily available.

Having obtained resumes, biographical notes and oral recordings of a member's life and work history, it is worth considering the further step of having the interviewer or a biographer, prepare a brief biography of the interviewee, from the material collected. This could mean going back to the interviewee with a draft for correction and filling in gaps.

## 18 STORY TAPES

Many large engineering projects are being undertaken, often without any attempt to record the experiences of those involved. In some cases videos are made, but often only a pictorial record is produced with little if any comment from the engineers involved. An oral history account of such projects would be not only interesting and produce case studies for future reference, but be a valuable addition to our social history and to the recording of the contribution of engineers to the development of the Nation.

By way of example, the story of the Sydney Harbour Tunnel could include information about:

- the people involved;
- development of concept;
- negotiations with the Government;

- economics and financing;
- design;
- environmental considerations;
- public consultation and community relations;
- construction aspects such as:
  - \* setting out,
  - \* dredging and controlling pollution;
  - \* casting tunnel sections in Port Kembla and towing them to Sydney;
  - \* positioning, sinking and sealing tunnel sections;
  - \* maintaining traffic flow on Warringah Expressway;
  - \* air conditioning;
- operation, traffic management and maintenance.

Such stories, if professionally made by say the ABC, would be of general interest and their broadcasting would bring recognition to engineers and The Institution. With careful negotiation, it should be possible for them to be financed by the contractor with little if any cost to The Institution. The Institution's role would be to manage the process.

A further possibility is to marry them together with photographic records, to produce an illustrated oral history on CD-ROM.

## 19 CONCLUSION

Throughout their careers, engineers and those who work with them, accumulate a wealth of knowledge and experience, most of which is not recorded. When it is recorded, it is usually sanitised - edited to produce a clinical impersonal account, with the human interest excised. It is like a picture without people. In the process it is easy to forget that people did "it" and made "it" happen. We learn little of the personalities of the "players", the things that moved them, the real reasons things were done, the social and political circumstances of the times, and those who were the real heroes are often hidden from us.

Through oral history we are not only privileged to share this private information, but we hear it in the passion, colour and timbre of the voices of the people who were involved.

These people, their voices, their thoughts, their feelings, their experiences are a rich and neglected part of our engineering heritage. We have a duty to them - to those who built and are building Australia, to record their knowledge and experience.

And we have a duty to enable future generations to know and hear the real story, with the same wonder and delight we might feel in hearing say, the wartime

speeches of Sir Winston Churchill and John Curtin, or in listening to Bruno Walter conducting a master class!

**Many photos lack interest and appeal by not having people in them - let's put the people back "in the picture". Let's empower the people who make history, to record their contribution for posterity!**

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