

Recording Engineering Heritage: The work of L.J.R. Jones

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SUMMARY

This paper discusses the vital importance of recording, researching and bringing together our engineering heritage using every available source and technique, focusing on records of the work of L. J. R. Jones, one of Australia's most outstanding and yet little known aeronautical engineers. He was unwilling to seek publicity, most of the records are in private possession, and actual examples of his work do not survive¹. Evidence of his work is certainly not available to the researcher in collected form, and yet both the work and the evidence of it are of vital importance in the history of aeronautical engineering in Australia.

In the course of my research into his life and work, I have uncovered a great deal of valuable material which records his work extensively using photography from 1907, formal papers (including one given to the Institution of Engineers), newspapers, popular weekly magazines, letters, Australian Archives, other manuscript and unpublished material, interviews with his colleagues and family, and a tape recording made by him near the end of his life.

My principal conclusion is that it is necessary to seek evidence of our engineering heritage in all manner of places, and to ensure that it is preserved in a coherent and cohesiveness manner. This is particularly true in the case of relatively unknown contributors to that heritage, such as Jones. His direct contribution to it was sustained for a period of some 30 years, and the rich photographic, manuscript, and oral records are of crucial importance. No less important are the printed sources and official records.

1 INTRODUCTION

Leslie John Roberts Jones was born on 4 June 1886 at Bathurst, New South Wales. He was educated there and later moved to Sydney where he was apprenticed to Edge and Edge Ltd, a firm of electrical and mechanical engineers. He later worked as an engineer for several firms but had no further formal training. While working as a hospital x-ray operator, Jones turned his attention in 1907 to aeronautics, initially involving the design and construction of a steam engine.

From the beginning of his active work in aeronautical engineering, his progress and achievements, and his disappointments, were thoroughly and comprehensively recorded. My main theme is that the record is remarkable for its diversity as well as its comprehensiveness. It is probably unique given the techniques available particularly in the early years. Yet there is no single source which records his contribution to our engineering heritage. The documentation of his work has been located in a most unusual variety of sources.

This paper focuses not so much on the projects in which Jones was the initiator or major participant, but uses them to demonstrate the important and diverse ways in which evidence of them and of their significance has been recorded. At the outset it is important to offer a brief overview of the aeronautical engineering projects in which Jones played a significant part as instigator or participant.

1 and 2. From 1907 to 1911 he designed and constructed both the airframe and the engine for an aircraft which in its entirety was the first such project to be completely and successfully carried through in Australia². The first machine never flew. Its replacement did, and was initially powered by a steam engine.

3. In 1911, following storm damage to his second machine, a third lighter aircraft was built and flown, powered by a petrol engine.

4. He commenced construction of his fourth machine in 1913. It was a more conventional biplane, well advanced for its time. It did fly, although its completion was interrupted by Jones departing on military service in 1916.

5. His fifth machine was constructed in 1923 and 1924 as an entry in the light aircraft competition at Richmond in 1924. It was not finished in time for the competition, but it was subsequently acquired, completed, and flown by others.

6. In 1927 he was commissioned to design and build an aircraft suited specifically for the Australian market. Intended to demonstrate its qualities by making the first aerial crossing of the Tasman Sea, it incorporated an all-steel welded framework. Usually known as the "Wonga", it had a Curtiss engine. After successful flight tests it was damaged by a storm in August 1930 and rebuilt using the Harkness Hornet engine, the first locally designed aircraft engine to be given a type certificate³. It crashed on 16 June 1932, killing both occupants.⁴

7. From May 1933, he took part in the design and construction of an aircraft known as the Centenary Racer, intended for entry in the 1934 London to Melbourne Centenary Air Race. However, time and money ran out and the project was abandoned.⁵

Jones remained in the aviation industry until after World War II, moving on to other employment until he retired in 1962. He died on 28 July 1970.

2 THE RECORDING AND PRESERVATION OF WORK BY JONES

His work in these projects has been recorded in a variety of ways, and the unevenness of its scope is more than compensated for by the variety of sources, and by the unique or at least unexpected nature of some of them. This is particularly remarkable given that he received less support than he sought or deserved, and in the light of his particular aversion to publicity. Much of the record that we have survives as much in spite of his own efforts as because of them.

Our record of his contribution to our engineering heritage is particularly strong in photographs. Jones' brother William was a photographer, and although sceptical about aeronautics he recorded in great detail the pre-war phases of his work as well as assisting in the actual work. The photographs are of extraordinary detail and quality, and by themselves constitute a remarkable record for engineers, historians, and photographers.

His work is also documented in manuscripts held in the Australian Archives covering his application for an official appointment in 1911, and his subsequent correspondence with the civil aviation authorities. Other manuscript material is held elsewhere, much of it being in private hands. Some of this material was prepared for publication by Jones and others, but this did not take place.

The printed record includes contemporary press accounts of uneven usefulness, two items in the records of this Institution one of which was contributed by Jones himself, and some very useful records in the pages of a popular weekly women's magazine.

There also exists a tape recording of Jones giving his own recollections of his work. It demonstrates quite clearly the value of oral history, something which I suspect could be used more effectively by students of engineering heritage than it has generally been thus far.

3 THE PHOTOGRAPHIC RECORD

"Documentary photography deals with the realistic as opposed to the romantic approach to life. It concerns itself with the everyday lives of ordinary people in their homes, in the factories, on the farms, in the mines...Documentary photography was rare in the early days".⁶

The collection of photographs taken by William Jones commences in 1907 with views of the prototype machine which served as a test-bed but which never flew in its original twin-screw configuration. The quality of this collection is outstanding and illustrates both the difficulty of building an aircraft in a narrow Glebe back-yard and the difficulty thus posed for a serious photographer in recording it. And given the early period, there would be few photographic records of a pioneering engineering work to match it. William Jones' photographs show this first aircraft at various stages of its construction, increasingly encroaching on the airspace of their neighbours who displayed apparent tolerance and even more apparent interest. They include photographs of Jones' workbench and tools, and of the engine before and after its first breakdown in 1910, when a chain snapped, the engine raced and considerable damage ensued. The photographs of this engine before and after the breakdown show details which are of great interest to the student of engineering heritage.

The photographic coverage of the machine which finally achieved flight on 4 June 1911 is equally outstanding. It shows in every aspect the transport of the aircraft to Emu Plains, and its thorough testing there. Almost every detail of the highly superheated three-cylinder steam engine is recorded, as is the rectangular-section airframe.

One of the less clear photographs, when viewed in original form, provides the only absolute proof of the achievement of flight by Jones' third machine, a much lighter aircraft, in 1912.

William Jones continued to record the work of his brother as construction commenced on the fourth aircraft and engine in 1913. Although William Jones enlisted for military service in 1915 "just as we were getting interested", the task of preserving the progress of Jones' efforts on this particular machine was taken up by others and the quality and importance of the record was maintained. This group of photographs shows the machine from its beginnings to its almost complete form during construction on the fringes of encroaching suburbia at Ryde, New South Wales. For the engineer, the machine is recorded from every angle. One photograph shows it with the engine running, about to fly. Another, from which some of the facts have been retouched for commercial reasons and therefore constitutes a warning to the researcher, was the first of the photographs to appear in the press, in this case the Melbourne *Herald*.⁷ On 16 October 1916, Jones himself enlisted for war service, and his fourth attempt at building an aircraft and engine to his own design was abandoned.

However, the record remains. The glass negatives of many of the photographs by William Jones are in the hands of Jones' family, as are some of the subsequent photographs of his work. Some have been copied by the National Library of Australia, and by myself. Others are listed in the records of the former Museum of Applied Arts and Sciences in Sydney⁸. A few have appeared in at least one military location devoid of all information about their subject⁹. The Jones collection was clearly intended to record Jones' efforts at every stage in the period prior to World War I and for a short time afterwards, and constitutes an outstanding example of the imaginative recording of history as it was made. Manuscript notes which I have seen indicate that an additional collection of photographs was held by the family of William Jones, but these have not been sighted.¹⁰

Jones' fifth design was commenced in 1923 as an entry for the Light Aircraft Competition conducted at Richmond, New South Wales, in 1924. Jones again worked on an airframe and an engine of his own design. The photographic record of the construction of the airframe is again extensive, and includes a few photographs showing it being inspected by the Minister for Defence (the Hon. E. K. Bowden) in the yard of Jones' home at Ryde. Work lagged on the engine, for which only one photograph exists showing some of its components. The official record of the competition includes some details of Jones' entry which did reach Richmond but as the machine was not completed in time for the competition itself the photographic record becomes all the more important. One photograph has been located showing it at Richmond; a photograph of the machine after its subsequent completion, along with two contemporaries, has been published in a recent monograph.¹¹

The photographic record of Jones' subsequent contributions to our engineering heritage has been more difficult to piece together, and is not preserved, archivally or otherwise, in any one location. Some photographs are held by his family, some are believed to be held by the family of William Jones, and others have been located in the possession of his contemporaries¹². Some have been found in the papers of engineers who worked with him on his designs in the late 1920s and the 1930s, people such as Arthur Ison and Donald Harkness who built the second engine for Jones' sixth aircraft (the "Wonga") in the early 1930s. Together these photographs do not yield the same degree of detail of the aircraft at all stages of its construction

as for the earlier machines. They do however show some details of both the Curtiss and Hornet engines, and of the complete airframes. They show too its structural integrity after severe storm damage in 1930 and after the fatal crash in 1932 which brought the Wonga project to an end.

The final project in which Jones played a leading role in design and construction commenced in 1933 and concerned an aircraft known as the Centenary Racer to be entered in the 1934 London to Melbourne Centenary Air Race. While chronologically the most recent of Jones' projects, the photographic record of this aircraft is the most difficult to gather. The design of the machine, which was to be powered by the Harkness Hornet engine, was again well in advance of its time, but it was ultimately not completed due to difficulties within the team and lack of financial support from its sponsors and from the Australian Government¹³. A number of photographs of the airframe at various stages of its construction have been located in the possession of Jones' family and colleagues. Other pictorial records were found in popular publications such as *Today*, *The Australian Review* which published an artist's impression, and to my great surprise several valuable photographs in the *Australian Womens Weekly*. The latter owes its unlikely value as a source of photographic record for the student of engineering history to the fact that it was a major financial sponsor for the project. As well as maintaining a flow of enthusiastic and uncertainly patriotic information about "the All Australian (British) Aeroplane", the *Weekly* published photographs of the machine under construction which cannot now be located anywhere else and for which the originals do not survive.

Other photographs exist which show Jones' workshop with its Leyland and Barlow treadle type screw-cutting lathe, and Jones in military uniform during World War I, and in his retirement years with former colleagues in his early projects. These are in private hands.

The photographic coverage of the work of this outstanding engineer is in my view one of the best of its type in existence. To the extent that sections of it are held together and are of great quality, these show the enormous value of recording our engineering heritage from the beginning. Yet where much of the photographic record of his work has not been preserved systematically, its importance is conversely demonstrated by the need for the student of engineering heritage to search in the most unpromising places for it.

4 THE ORAL RECORD

There exists at least one tape recording made by Jones at the request of (and accessible through) his family. In it, he recalls the details of the whole range of his activities in aeronautical engineering. I can detect in it no errors of fact or memory, except in respect of his projects in the 1930s over matters which can never be finitely resolved. Private notes and letters to me also indicate that other interviews or memories were made by Jones and his contemporaries, but

I have been unable to locate these to date¹⁴. Oral history is of enormous value to historians - arguably more so than to engineers, and is often the only way that the experiences, achievements, and activities of those who contribute to our heritage can be adequately collected and interpreted. It can always add a new dimension to what is already available. Jones himself left behind him some letters and a paper which while valuable by themselves would hardly be an adequate record of his own contribution or viewpoint. The tape recording which he made is therefore all the more important in giving us his own perspective, as well as contributing to the wider record. This particular example yields considerable detail on some of Jones' earliest work, and on those who helped him in the post-World War I period. And by giving it in his own words, it presents a special perspective on why his work has not been adequately recognised.

Oral history can also be used through the recollections of family members and associates. I have been able to use this technique to some extent in this case¹⁵, and it is still possible to obtain more such information. However the number of people who have first-hand knowledge and experience of Jones and his activities is dwindling rapidly.

5 THE PRINTED SOURCES

The range of printed sources in which the details of Jones' work is to be found is quite remarkable. Contemporary press reports are of great value, often in spite of Jones' efforts to hinder them. In some instances they provide details which are unique¹⁶. But they do not cover any of his projects in anything like sufficient detail, and would be quite inadequate unless supported by other evidence. The metropolitan press provides obvious leads; local newspapers also yield some data not available elsewhere.¹⁷ An obituary published in the local newspaper of the Richmond area in which much of his experimentation was carried out contains a useful summary of his career but was aimed at a limited audience. Other press reports while short in themselves provided clues which were the stimulus for investigations by the civil aviation authorities who in turn produced more useful information in the form of inspections and reports. When there was a wider dimension to Jones' work - such as the light aircraft competition in 1924, or the Wonga crash investigation in 1932, the contemporary press can for a time be made to yield good information.

Similarly, contemporary aviation journals such as the highly respected *Aircraft* contained some references to and (less often) accounts of Jones' work, but few that were sustained or comprehensive¹⁸. The value of these sources lies in the fact that they were contemporary in content and in some cases written by colleagues of Jones. Valuable though this type of material is, there is not a lot of it. One of the best such sources, written early in 1925 after the light aircraft competition at Richmond, was in it's author's own words a "long and loosely-worded report".¹⁹

The documents and reports relating to the light aircraft competition which was announced in 1923 yield a good analysis not only of Jones' project at that time, but of the ability of Australians to design and construct flying machines, at a time just before the de Havilland Moth family overwhelmed such activities. The competition was set for November 1924, and as the time approached the Sydney press manifested confident expectations that locally-built aircraft "will be placed on the market in Australia within a few years. The machines will cost approximately £300, and will be as easily handled, as safe, and as economical to run as an ordinary motor-cycle".²⁰ Although the researcher should never believe all that is in the contemporary press, time did demonstrate that there was some truth in this prophecy.

In recent years a limited number of reference works have become available in which are recorded the bare details of a particular person's life or work. The entries in these are valuable for the researcher, but only in some cases have they reflected more substantial work already done or published.

The records of this Institution also contain vital information for those researching engineering heritage. In this particular case, *The Australasian Engineer* contains a paper given by Jones himself to the Institution's aeronautical engineering branch (Sydney division) in 1930, when his work on the Wonga aircraft was at a turning point²¹. It is unusual in that it is both contemporary and first-hand, and because it was presented while the project was still being developed it is unprejudiced by the unsuccessful outcome. The Institution's *Journal* also contains a contemporary account of aeronautical research in Australia and of Jones' place in it²².

The Institution's journal shares with the Australian Women's Weekly the ability to yield information about Jones' work which is to be found nowhere else. The Weekly's words are as valuable as its photographs, even when discounted for enthusiasm. The well-known Smith's Weekly also contributed its account of Jones' 1924 monoplane from the human interest point of view, referring to the breathtaking work going on night and day in a nameless and numberless cottage in Ryde. Notwithstanding its unique style of journalism, there is information in its account by one later to become well known in his own right that is unique in content too.²³

There has been the occasional specialist article which has briefly mentioned Jones.²⁴ More recently, information has begun to appear in specialist, limited-circulation journals such as Man and Aerial Machines, some stimulated by my own investigation and some criticising it. Such material is not widely or routinely available.

Finally, when considering the preservation of engineering heritage, one should not overlook the place where the heritage began. In this case, a small framed display on the wall of the Aero Club at Bathurst, seeking to honour one born locally with a claim to distinction, was the beginning of what has become for me a wide-ranging investigation into his work and achievements, and the ways in which they have been recorded. The material for this display was provided by the Museum of Applied Arts and Sciences at the instigation of Jones' family.²⁵

6 OFFICIAL SOURCES

In 1910 Jones forwarded some of his designs for entry in the competition then announced by the Commonwealth Government for flying machines. Ultimately, the competition failed because no-one could meet the impossible terms which the competition prescribed. Documents relating to Jones' entry are held by his family, and give a very detailed description of his first machine, which was to have been powered by a 40 h.p. gas turbine engine driving two airscrews.²⁶

In February 1912, Jones was one of many who responded to the Commonwealth Government's advertisement for the appointment of "two competent mechanists and aviators" to the Department of Defence. In his application, Jones set out his already considerable experiences with aircraft over the previous five years. "The designing, pattern-making, machining and erection of these Machines was done entirely by myself". His application was not successful, and the historians have concentrated on tracing the first appointments for what was to become the Royal Australian Air Force which went instead to Eric Harrison and H. A. Petre. For the student of engineering heritage, Jones' application is a significant document, being a contemporary, detailed, and illustrated account of his activities in the design and construction of three aircraft in the years up to 1912.²⁷

The military records of Jack and William Jones are available in the basic form familiar to researchers, and these are useful for confirming facts or giving basic information about dates and places.

Australian Archives also contain some very valuable files on Jones' activities - in particular relating to a later request to have his 1924 light aircraft registered, and the Wonga project 1927-1932¹. This includes the records of what was then the Civil Aviation Branch of the Department of Defence, which yield good information about Jones and his work. For example, on examining him for his engineer licences in 1922 and 1923, the Departmental examiner remarked that Jones had "a first class knowledge of aero engine construction" and an equally good knowledge of aircraft construction.² The file on Jones' licences covers

the period from 1922 to 1946 and records in great detail the work in which he was engaged over that time. It gives details which can be found nowhere else, not only on his major projects but on his routine work. There is insight given into the servicing and maintenance of commercial and light aircraft and the standards which applied. This routine type of activity can be too easily overlooked in the records of our engineering heritage.

Reports from the N.S.W. Police Department were forwarded to the Civil Aviation Branch following the crash of the Wonga in June 1932. These also contain details about the construction of the aircraft and the circumstances in which it crashed, with an immediacy which is absent from subsequent accounts. There are depositions from witnesses of the accident and from colleagues of Jones who had been involved in the construction of the machine. Here again the detail that is recorded in this source of official documentation is not to be found anywhere else.¹

7 MANUSCRIPT SOURCES

"I am trying to write up about my own early work....I always dreamt of machines that flew...." ² Jones' own notes of his activities are held privately, and contain information which in places are at variance with typescripts also amongst his papers, evidently produced when publication of his memoirs was being pursued. They include various manuscript pieces, as well as a more substantial record of his early work in an exercise book. Included in the family papers are notes referring to an intention to publish some of Jones' memoirs, involving Jones himself. Although some work was done on this, nothing came of it. It is likely too that some original manuscript and photographic material is held by the family of William Jones, a supposition supported by notes in the archives of the Museum of Applied Arts and Sciences, but I have not been able to confirm this.

Jones' contemporaries have also left unpublished information about his work. R. S. Chambers has drawn a map dated 23 August 1969, which enables the modern student of engineering heritage to locate the site of Jones' first flights in the encroachments of modern housing development. It was based on information supplied by Urban Hollier who is shown in the early photographs as a young boy on his father's property "Eden Glassie", the site of those early experiments.

There is a substantial unpublished manuscript by Don Harkness, who was actively involved in the Wonga and Centenary Racer projects and who made a significant contribution to our engineering heritage in his own right³². Additionally there are letters from Chambers, Mark Leach, Len Carolan, and R. B. Lowndes.³³

Jones remained in aviation throughout the 1930s after the Centenary Racer project was abandoned. From October 1938 to May 1939 he was the ground engineer at the newly formed Canberra Aero Club, and the Minutes of the Club's Board of Directors and Flying Committee contain a number of unpublished references to his aero club activity in the small national capital on the eve of World War II.

In summary, those manuscript sources not included in the preceding categories are significant whether contemporary or subsequent. Other than for my own research, some of these sources have not been fully exploited either by engineers or historians.

8 CONCLUSION

The records of the work carried out by this most remarkable contributor to our heritage in aeronautical heritage have never been systematically preserved or collected. Yet any researcher who locates them will find material that is not

only significant but quite remarkable for its comprehensiveness of scope but also its diversity of location. For a thorough study of such work it is necessary to search in every possible place, even those which are unlikely from the viewpoint of the historian.

The study of Jones' work also shows the vital importance of proper preservation of such material. Too much is in private hands and therefore subject to risks of discarding or decay. My research into his life and work has led me into uncharted territory not only in the disciplinary sense, but also in locating primary source material. It is of fundamental importance that such material be accurately located, assessed, and preserved, so that historians, engineers, and others whose skills can be brought to bear can assess, document, and preserve it.

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