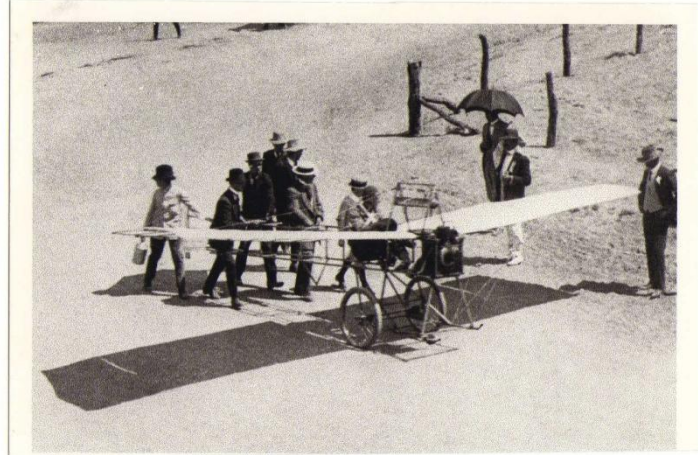


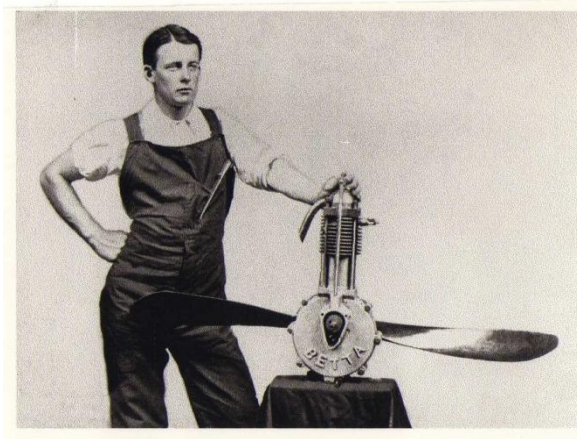
## **ALLAN RUPERT BETTERIDGE 1891-1973**

On a salt pan at Port Augusta, South Australia, in October 1912, a 20 year old aviation enthusiast flew a home built monoplane some 60 yards at a height of one foot. This flight became important as being the first flight in South Australian aviation history in which the pilot flew an aircraft of his own design. This intrepid flyer went by the name of Allan Rupert Betteridge.



A R Betteridge in his monoplane  
October 1912, Port Augusta

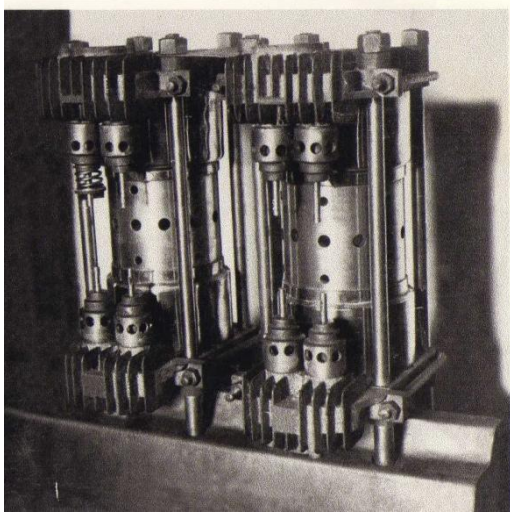
Born on 11<sup>th</sup> October 1891 at Port Augusta, young Betteridge was a precocious child having the good fortune to be able to read reasonably well at four years old, and a father (R.A Betteridge, Port Augusta's chief fireman and electrician) who fostered that reading in order for his son to be able to read some of the books kept in his expansive engineering library. The one book that really captivated young Betteridge's imagination was a book on physics, complete with easy explanations and illustrations. As time passed he would conduct exercises illustrated in this book, and, using his father's tool box, would build quite complex engineering power systems. This was done before he reached the age of 6 years.



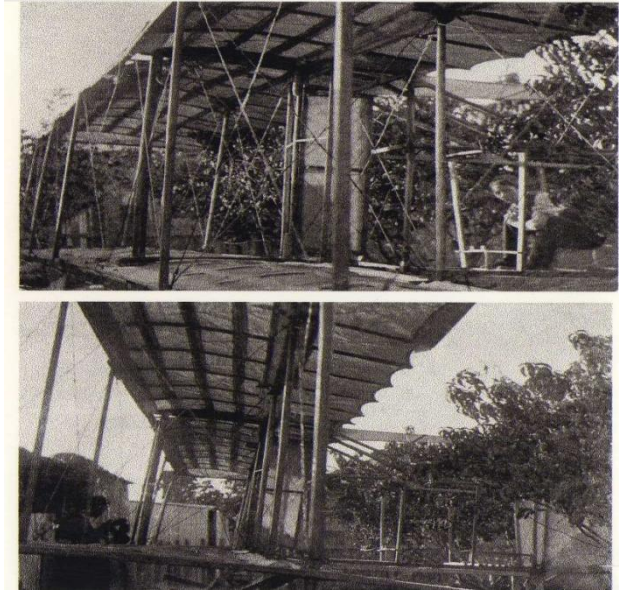
A R Betteridge posing with his single valve engine  
(provisionally patented in 1909)  
Photograph taken in 1919

Thus, it could be argued, his thirst for knowledge and his ability not only to understand highly technical information but also to construct machines related to his research, dominated many of his early years.

Between the years 1905 and 1909 this child prodigy had personally constructed two engines designed for use in aircraft. One was a twin cylinder double acting engine (never completed), and the other a single valve engine complete with propeller.



Double acting engine and radiator. Parts all home made between 1905 to early 1907. It had a 4 inch bore and 4 inch stroke.



Two photographs of the same biplane glider built between 1906 and 1908. All construction work was carried out at 'Sunnyside', Torrens Street, Hackney.



A R Betteridge sitting in his biplane glider (about 1906-07)

Associated with these creations, he designed and built, with the help of a fellow enthusiast James C Lamb, a biplane glider.

To earn a living Betteridge worked as a motor mechanic, and after the declaration of war in 1914, it was not surprising that he seriously thought about enlisting as a soldier in World War 1. His enlistment occurred in October 1915<sup>1</sup> and after a brief spell in the infantry he was transferred to the Australian Flying Corps as an air mechanic. In 1916 he was with No 1 Squadron which left Australia for service in Egypt and Palestine. Much of his squadron activity was involved with aircraft servicing, flying at times with the squadron pilots and - when he had the time - inventing.

One of his unofficial inventions was a hydraulic synchronising gear, which enabled machine gun bullets to be fired safely through a moving propeller. A device later developed by the RAF.

<sup>1</sup> His enlistment record showed him as ALLEN, we think incorrectly

Another invention relevant to the bombing needs of his squadron was to design a bomb sight which allowed the bomb aimer to compensate for the variations that were associated with the altitude of the aircraft above the target. He was also Mentioned in Despatches for work associated with the modification of bomb release mechanisms, which had been made ineffective by the inclusion of sand.

From a wartime perspective Betteridge was a lucky man, never having been shot down when he flew with his squadron's pilots over enemy lines, and even escaping death when his airfield was bombed. To quote from his diary:

*"12/4/17 Huns bombed us this morning, and incidentally nearly got my mess ticket. Dropped a 25lb bomb within 7 feet of me (absolutely no exaggeration). In fact it was only the fact I was "within the ring" that saved me from being blown to pieces (30 bombs, 5 casualties)".<sup>2</sup>*



Corporal A R Betteridge

Returning to Australia he received his discharge on the 24<sup>th</sup> April 1919. Surprisingly, he did not follow a career in aviation, but decided on a teaching career with the Education Department as a Senior Instructor in Motor Mechanics. What did not seem to change was his need to put his many interests and ideas into practice. His interest in photography saw him grinding his own camera lenses to produce unique photographs. He also became a recognised artist painting in oils, with one of his works being commissioned by the Port Augusta Council. He built models of the Portland Cement Works and of the Mount Bold Reservoir, which earned him a gold medal at the Royal Adelaide Show.

But it was his desire to create things of a practical nature that captivated his imagination. The following creations show, perhaps, the versatility in his thinking: an electronic organ, and industrial tables for cleaning low grade iron ore and washing newly laid eggs. He also saw the value in being able to construct teaching aids related to the automobile industry. One was a miniature motor vehicle designed to instruct a pupil to steer while travelling in reverse. Another was his design for a windscreen safety device.

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<sup>2</sup> Schaedel 1998

Charles Schaedel, summing up Betteridge's military inventions, stated:

*"Betteridge also built a three cylinder rotary engine and just before, during and after the Second World War submitted his ideas for a segmented aerial torpedo or scatter bomb, a bombsight, and a photographic aerial dart as well as doing some work on an anti tank guns."*<sup>3</sup>

Allan Rupert Betteridge died at his Torrensville home on the 2<sup>nd</sup> July 1973 aged 81 years. Just before his death he had an idea for a design for a yacht mast that always remained vertical despite the position of the hull - no doubt stimulated by the America's Cup.

Many of his creations may not have been financially successful, but every one of them worked.

### References

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All photographs are from the Betteridge family collection, copied by A Killmier with the permission of Mrs Betteridge, AR Betteridge's widow.

### Jim Rogers

History Group member  
South Australian Aviation Museum inc  
March 2014.

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<sup>3</sup> Schaedel