

MR ALASTAIR JOHN MACKENZIE

After war service as Radar Officer on *HMAS Australia*, Alastair Mackenzie completed an electrical engineering degree at Cambridge University, followed by an appointment in charge of all ground-based radar at the Weapons Research Establishment, Salisbury, SA. He returned to rural interests in 1955, where one of his first agricultural engineering projects was the development in the 1960s of the Beaufort Post Sett, an hydraulically powered soil auger and post rammer which signaled a significant advance in the mechanization of fencing.

A severe downturn in the Australian wool industry at the start of the 1970s precipitated new interest in ways of overcoming industry problems. The Agricultural Engineering Department of the University of Melbourne was funded by the Wool Research Trust Fund to analyse sheep handling in Australia. The University project began in 1971 when Alastair Mackenzie was appointed a Research Fellow in Agricultural Engineering. Mackenzie had considerable experience as a commercial wool producer and brought to the project valuable industry understanding, as well as a unique combination of technical knowledge, practical experience, an enquiring mind, personal relations skills and an intellectually rigorous research capacity. The survey he initiated, of sheep handling operations on selected properties throughout Australia, confirmed the significance of wool harvesting as the main component of the operating cost on sheep farms and identified major areas for cost effective research. This was a massive piece of research and many of the recommended potential innovations were pursued with outcomes of great benefit to the industry.

The University's wool industry activity became known as the Melbourne University Sheep Handling Engineering Experimental Project (MUSHEEP) and was funded from the Wool Research Trust Fund for more than a decade. This continuing support was a result of Mackenzie's investigative work, which provided essential on-farm performance data and helped define the characteristics of a complex and widely dispersed rural industry so that research could be effectively targeted. In 1973, Mackenzie resigned from the University, but continued his interests in the MUSHEEP project as an honorary Fellow of the Department of Civil & Environmental Engineering until 2000. Using ideas collected during the survey of sheep handling, he designed a woolshed for his property that included many novel features which are now incorporated into modern shearing sheds across Australia.

Alastair Mackenzie's research interests from 1973 concentrated for several years on the engineering aspects of wool pressing. With Stevens & Lyons of Beaufort, he developed the Stevlyon hydraulic woolpress, now widely used across Australia, New Zealand, South America and elsewhere. These presses are also used in other industries where product is required to be compressed, and are considered one of the safest and most efficient presses on the market. Alastair Mackenzie was also a driving force behind the formation of Woolgrowers Independent Selling Services (WISS) in 1979 and became its inaugural Chairman of Directors.

Mackenzie went on to spend time investigating the severing of wool. Again, his keen interest in basic research led him to investigate the dynamics of the existing mechanical shearing handpiece for safety and efficiency. His inventions were preceded by methodical research and he developed sophisticated instrumentation to monitor shearing handpiece performance in the field. More recently, he linked this instrument to a laptop and created a self-contained portable laboratory. He also applied basic metallurgical knowledge to greatly reduce the wear on the cutting elements, with considerable benefit to productivity and work place conditions.

Innovations in the wool industry for which Alastair Mackenzie has had major responsibilities include the improvement of wool baling, ergonomic design of shearing sheds and

improvement in the design of handpieces. The results of these innovations and their benefits are to be seen in many of the wool growing properties around Australia. He has chosen to disseminate the results of his work through direct communication, by demonstration in the field and through lodging patents. We estimate he has held more than 20 patents of value to the wool industry.