

Science: on the shoulders of those who came before us

It is a decade since *Animal Production Science* (APS) evolved from the *Australian Journal of Experimental Agriculture* in 2009. In this period, the ‘new’ journal has faced considerable challenges from an exponential increase in journal numbers, use of citation metrics as a measure of quality rather than journal content and the ongoing switch to open access. Nevertheless, APS has maintained rigorous scientific standards, continued to grow its readership, and doubled the page number of each issue. In addition, special issues of APS, devoted to a specific research area or papers delivered at a conference or symposium are published regularly following peer review by the journal. Each issue of the journal commences with a review and this was bolstered in 2014 with the introduction of the invited review series *Perspectives on Animal Biosciences*.

As was envisaged with the introduction of *Perspectives on Animal Biosciences* (Bryden 2014), a broad spectrum of topics have been addressed in this invited series, including the following: ruminants and comparative aspects of methanogenesis (Leng 2014, 2018; Cottle and Eckard 2018), animal products and human health (Barendse 2014); application of animal simulation models (Black 2014); animal welfare (Colditz and Hine 2016; Dawkins 2017; Grandin 2018); RNAi-based technology (Bradford *et al.* 2017); and evaluation of the value of research (Griffith and Burrow 2015). Suggestions for future review topics and authors would be most welcome.

During the current year, several innovations will be introduced to APS. The format of the abstract for research papers will change to include subheadings, with a section on the implications of the research. We believe that this will provide the reader with a much more helpful summary of the research question(s) addressed, the experimental approach, and the outcome. However, the abstract for reviews will not change. Papers will also list the Associate Editor who guided the paper through the peer review process.

We plan to release a virtual issue later this year to include the most highly cited papers during the decade. Virtual issues provide an excellent avenue to highlight outstanding papers, especially in defined research themes. We hope, in future, to highlight relevant content across journals – this will be particularly relevant to APS and its sister journal *Crop and Pasture Science* as the predecessors of both journals, *Australian Journal of Experimental Agriculture* and the *Australian Journal of Agricultural Research*, respectively, contain excellent animal and plant copy. It will be exciting to introduce this material to a new audience.

Perhaps the biggest change, in some respects a departure from the normal format of scientific journals, will be the introduction of reviews that reflect historically on our science and participating scientists. In some respects, this is an experiment, but APS does publish Festschriften and biographical sketches of those who become Fellows of the Australian Society of Animal Production. Both generate considerable interest, as it is natural

that we feel an affinity to those to whom we are related through research interests. Nevertheless, much is said and written about ‘impact factor’ and citations in evaluating the worth of one’s publications, but it is the excitement and joy of doing science, rather than the recognition itself, that should motivate us.

Research today moves at great speed. Publication is rapid, and one is left with the impression that everything of importance occurred in the past decade. However, science is built stepwise on the shoulders of those who came before us and it often is difficult to gain an appreciation of how particular areas of the animal sciences developed. The new review series will provide context for the current state of a discipline or a department and provide an insight into scientists who we often recognise as a name on a paper but know little else about them.

Professor Alan Bell has contributed the first review in this new series (Bell 2019). In reflecting on Alan Bell’s paper, I have drawn on the comments of three distinguished and anonymous referees. The initial reaction of all three was that it was an informative compilation but would they expect to see it in APS? However, they all concluded that the publication of the scientific achievements blended with personal observations and recollections of the 18 chosen scientists makes for compelling reading. These scientists have made a huge contribution to human and animal biology during the past 75 years. They are given a human face and the reader is given an insight into the conditions they faced as their science and careers developed.

In compiling the review, Alan Bell hoped that established scientists would be reminded ‘of people, places, times and scientific issues familiar to them. For younger scientists, I hope my writings will humanise a generation of famous researchers who otherwise would be known to them only as author names on classic papers and reviews’. In so doing, he will broaden the readers’ perspectives if not their scientific knowledge. As one anonymous referee commented, the compilation contains some important messages, such as the following:

- The advancement of knowledge in the animal sciences, as within other discipline areas, is incremental. Successive contributions are built on previous findings, whether by current investigators or their predecessors.
- The value of an inter-disciplinary approach to scientific investigation is demonstrated clearly. The combined wisdom and experiences of scientists from a range of discipline areas was demonstrated to be a key to success in advancing knowledge or problem solving.
- The generosity of those who are engaged in the processes of research is amply illustrated. The great majority of senior researchers provide their junior colleagues and students with opportunities to develop their own skills and capacities to make contributions to the advancement of knowledge.
- It is clear that collegiality among scientists is of critical importance. The ability to exchange information freely and

frequently, whether by one to one interactions, conference attendance, publication or the hosting of visiting and/or developing scientists should be taken seriously. The practice of restricting information exchange to enable the capture of the value of intellectual property should be considered in the light of impeding the advancement of knowledge. Often this has consequences for research funding.

- Attention is drawn to the importance of agriculture in modern societies where the great majority of citizens have little or no direct connection with, or knowledge of, the production of food and fibre.
- The importance of gaining an understanding of the factors that are important for the resolution of practical problems and the capacity to articulate these factors so that the public can understand them are drawn to the reader's attention.

Professor Bell has included many other names, both antecedents and protégés of the 18, that will be familiar to many readers, thereby greatly extending the connections to many of you. Moreover, a review of this nature reflects the research interests and experiences of the author and, thus, precludes many other worthy scientists who made valuable contributions in the same general field; this provides an opportunity for others to contribute.

Reflections are intended to acknowledge the importance of the history of science and suggestions for topics and authors are encouraged by **APS**. Contributions need not be restricted to biographical themes as the history of an institution or the development of methodology can be very informative. Ian McDonald's description of the discovery of the role of cobalt in coast disease that plagued cattle in South Australia and Western Australia during the early part of the 20th century makes for fascinating reading (McDonald 1993). Likewise, *Citation Classics*, which were initiated by Eugene Garfield to expose the human side of scientific papers (Garfield 1977), is most informative. In this collection, it is revealed that the paper by Lowry *et al.* (1951) on protein determination, which is one of the most cited of all scientific publications (336 025 citations in total or 4941 citations/year), was nearly not published.

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Editor-in-Chief

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