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Angus Campbell David Bayvel An Honorary Life Member of ANZCCART

David Mellor,

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It is with great sadness that we mark the passing, on 7 April 2015, of David Bayvel, a giant in the animal welfare arena, who was very well known, liked and respected by many of us who have been associated with ANZCCART. Born in Glasgow on 22 May 1944, David attended that city's Allan Glen's School, then graduated with a Bachelor of Veterinary Medicine and Surgery from the University of Glasgow in 1967 and a Diploma in Tropical Veterinary Medicine from the University of Edinburgh in 1968. He spent the next 20 years or so in private practice, government service and the pharmaceutical industry in the UK, Zambia, South Africa, Australia and New Zealand. In 1983 he became a Member of the Australian College of Veterinary Scientists (Pharmacology Chapter) by examination.

After serving as Executive Director of the New Zealand Veterinary Association (NZVA) between 1989 and 1991, David joined the Ministry of Agriculture and Fisheries (MAF), full time, as its National Manager for Animal Welfare and Environment.

In that role he established animal welfare as a pivotal area of Ministry activity requiring specific leadership and a significant staff group to support it.

It was at this time that I first met David when he approached me to assist with the initiative, via the Royal Society of



New Zealand (RSNZ), to establish ANZCCART as a trans-Tasman organisation.

The purpose was to expand the then Australian Council for the Care of Animals in Research and Teaching (ACCART) which had been successfully launched some years earlier. At that time no such organisation existed in New Zealand. The result, modelled on the ACCART paradigm, was a resounding success: i.e. the establishment of an organisation, supported in New Zealand by the RSNZ, the New Zealand Vice-Chancellors Committee (now Universities New Zealand), the Crown Research Institutes that use animals scientifically, the Health Research Council and several other organisations.

This trans-Tasman Council, with David's enthusiastic encouragement, became seamlessly imbedded into New Zealand's animal welfare infrastructure, in particular with regard to the provision of advice and critique regarding the regulatory management of animal-based science. It continues in that role today. Moreover, through its integrated trans-Tasman activities, ANZCCART quickly came to command and retain great respect internationally as a forward-thinking, innovative contributor to the humane, responsible and ethical conduct of animal-based science. David was an active member of the New Zealand Board of ANZCCART (an RSNZ sub-committee) for the first three years until the Council was operationally well established, and he retained an active interest in it thereafter. He can justifiably be accorded major credit for the enhancement of New Zealand's international reputation for its regulatory management of animal-based science, an enhancement to which ANZCCART's establishment in 1993 made substantial contributions.

David took a lively interest in the planning, mounting and publication of the proceedings of the nine ANZCCART conferences held between 1993 and 2000, regularly offering suggestions on themes, specific topics, potential speakers and the distribution of the published proceedings. He also strongly advocated, and working with others, achieved notable participation of Australian and New Zealand speakers between 1993 and 2011 in the regular World Congresses on Alternatives and Animal Use in the Life Sciences, to the benefit of ANZCCART's and the participants' international reputations.

David's professional interactions with others were invariably positive, and many of us have benefitted from his open-minded, inclusive and generous modus operandi. He had an exceptional capacity to engage organisations and individuals having diverse interests and allegiances in mutually beneficial activities. He regularly launched initiatives, oversaw their establishment, then withdraw to allow others to benefit

from opportunities that arose from carrying these enterprises forward. And he always sought to ensure that credit was accorded to others for their contributions and modestly did not seek personal recognition for his own pivotal roles.

David's contributions to ANZCCART have been emphasised to this point. But his compass went far beyond animal-based science. Indeed, in his role as Director, Animal Welfare in MAF Biosecurity New Zealand from 1998 to 2012 (when he retired), he instigated, participated in and encouraged constructive national and international initiatives across the full spectrum of animal welfare relevant areas, drawing on his wide understanding and exceptional capacity for networking locally, nationally and globally. Of particular note, as an additional activity between 2001 and 2012 was David's pivotal role in defining and successfully directing the Global Animal Welfare Initiative of the Paris-based World Organisation for Animal Health (OIE). This then involved that organisation's 176 member countries. The initiative was exceptionally successful, as judged by the 14 global animal welfare standards developed and promulgated by the OIE to date, each with the unanimous support of all the member countries. This was a signal achievement, recognised by the OIE conferring on David its Meritorious Service Award in 2010.

After retirement from MAF in 2012, David was the Chief Veterinary Officer of the highly respected global animal advocacy organisation, WSPA (now World Animal Protection), where he continued to apply his immense international experience and understanding of strategic animal welfare initiatives.

David received numerous honours and awards at the highest level and was especially proud of his appointment as a Companion of the Queen's Service Order (2012). Other awards, in a much abbreviated list, all of which he greatly appreciated include: ANZCCART Life Member (2011), NZVA President's Award (2011), ANZVS College Prize (2013), Honorary BVSc from Massey University (2013), and Honorary Associate of Massey University's Animal Welfare Science and Bioethics Centre (2014).

As a family man, friend and colleague, David was committed to fun, often devising new games and diverting activities for everyone's enjoyment. He loved to share sport with others, especially rugby and golf, for which he had a striking enthusiasm. He was also renowned as an acronymophile, a favourite acronym being CWP-RWT (courteous with people, ruthless with time!), and the longer the better, so ANZCCART had a special place on his list! His generosity, warm-heartedness, kindness and welcoming nature are

sorely missed, and we give special thought to his family at this time: Lieschen, his wife and life partner, Carolyn and Scott his children, their spouses Matt and Catalina, and his grand-children Aidan and Caitlin; also, in Scotland, his brother and sister-in-law, Alfred and Anne.

David Mellor
Honorary Life Member of ANZCCART

Pilot Study Design

Geoff Dandie, CEO, ANZCCART

Our increasing reliance on pilot studies as a way of informing members of an Animal Ethics Committee (AEC) about the potential viability and/or costs associated with a new or significantly different area of research is a very positive step, with the potential to substantially reduce the number of animals used, refine the way in which they are used or potentially even show how experimental animals may possibly be replaced in some cases. Perhaps more commonly however, they seem to have enormous potential to address concerns that arise very naturally out of a lack of experience with and information about a new area of work. The concerns to which I refer, might be experienced by researchers, by administrative staff, or by members of the AEC. A well designed pilot study can save researchers years of effort, it can prevent the wastage of scarce research funds and it can also prevent the unnecessary use of animals. So the prudent use of pilot studies should really be thought of as a genuine win / win scenario at all levels but like all experiments, study design is critical.

During the past few years, I have seen AECs construct, dissect, consider and discount a vast array of pilot studies – some of which were too restricted to offer anything more than confusion, while others were large and elaborate enough to underpin an entire Ph.D. program. The art of designing a pilot study (or any other experiment for that matter) should not be underestimated or taken for granted, as it can be even more complex and intricate than any major research project as you are trying to get maximum information from minimal commitment.

The need to address at least one, but more often than

not multiple issues within the constraints of a pilot study, means that it may be best to undertake the work in stages. So don't fall into the trap of thinking that a pilot study has to be an 'all or nothing' shot at success because that may not always be the best way forward. The following template is not offered as a global panacea but as a starting point that might help researchers and / or AEC members think through some of the scenarios that may be associated with the design of an effective pilot study.

Step 1: Decide why you are planning a pilot study and what you want to get out of it.

Most commonly, your pilot study will want to achieve 'proof of concept' at some level. This may well fall under one or more of the following headings:

Is the work feasible?

Do we have the technical skills required to do it properly?

How will the animals be affected?

At this level, we are asking some very basic questions that pretty much have a yes / no answer. This means that some of the more complex aspects of experimental design like statistical significance, etc., can be ignored for the moment. This in turn means that you will only need to use a very small number of animals. This may be as many as four or five, or it could possibly be as small as one – particularly if you clearly learn that the answer to your question is "no", so there is no point in wasting or risking more animals. Accordingly, this part of the pilot study must be conducted using your 'best guess' conditions. In other words, select the dose, time, route and monitoring conditions that your preliminary *in vitro* studies, research of previously published work or prior experience lead you to believe will have the best possible chance of success. If this is not a feasible approach for you to follow, then the alternative strategy might be to start with the scenario with lowest impact and work up (rather than the other way around) even though this will inevitably mean using more animals.

Step 2: Having now (presumably) passed the first check-point of feasibility, there will be a need to refine some of these basic questions a little. So you might be wanting to focus on some fundamental principles that will help to direct any possible future work in this area. These questions may include things like:

Are we going to get meaningful data from the work?

What parameters will we need to consider?
Are we working with the right / best species?
Will our work translate and be applicable to the original question?

At this stage it will probably be necessary to plan on using a few more animals and include some appropriate controls as well, but don't lose sight of the fact that this is still only a pilot study and not your life's work. So statistical significance is probably still a luxury you can't afford. (That said, there is a lot to be said for thinking this through carefully enough to ensure that there is every possibility of using the data you obtain in any follow up work, thereby reducing the numbers of animals you may use in total and gaining the most value from your efforts.) Again, it might be best to focus on your 'best guess' conditions as in the previous stage, but it might also be that the results obtained from the first couple of animals might guide this phase of your work.

Step 3: By this stage, you will hopefully be getting a pretty good idea about the feasibility of the work and whether or not it will be worth pursuing. It is, however, still reasonable to assume that some questions may still need to be answered before you would want to commit to a full scale project or your AEC would be happy to entertain a full application from you to cover such work or anything else likely to arise from the pilot study. It would be smart to make some allowance for this when designing your pilot study. Having reached the point where basic issues of feasibility have now essentially been addressed, the fact that you are still pursuing this work would indicate your interest, if not intent, to continue on to a full study so you need to be refining your plans accordingly. It would therefore be prudent to now consider the bigger picture and factor ideals like statistical significance into your experimental design. Not because you will necessarily be able to achieve it as a part of the pilot study, but because from this point, you should aim to conduct your work so it will definitely allow you to expand on it later in a way that will attain significant data and not waste any of the animals you are about to use. Hopefully, this will also allow you the best opportunity to design a full project that will yield important and relevant information and meet the requirements of your AEC.

Taking a step back and reviewing the entire process, I think that above all else, the critical aspect of pilot study design is the idea of staging the work so that each phase can either show the work is not worth pursuing and provide an early exit or it can inform and refine subsequent stages so that you will have the best chance of success. Either way, the great advantages of conducting a staged pilot study rather than embarking

straight into a potentially problematic project should be obvious and illustrate the value in putting appropriate effort into designing a well-structured pilot study.

In putting this together, I have been guided by both experience and the Code, which (not surprisingly) offers some sage advice under three key headings (Code references included):

Responsibility of AEC

2.3.14 Pilot studies, where proposed, should be regarded as integral to the overall project, especially to enable assessment of the feasibility of the project and the potential for refinement and reduction. They must be assessed by the AEC according to the criteria applied to project approval.

Responsibility of Investigators

2.4.8(xvi) a pilot study is incorporated into the design of the project if the potential impact on the animal cannot be predicted on the basis of available evidence, to allow staged assessment of the impact on animal wellbeing and the development of strategies to avoid or minimise any adverse impact.

Strategies to support and safeguard animal wellbeing

3.1.4 If the potential impact on the animal, or the validity and efficacy of criteria for intervention to minimise harm, including pain and distress, cannot be predicted on the basis of available evidence, the incorporation of a pilot study into the design of the project must be considered.

Recent Articles of Interest:

Keep the directive that protects research animals

Kay Davies, a scientist from Oxford, UK, is researching the disease process in Duchenne Muscular Dystrophy (DMD). A recent discovery is promising as the drug targets the underlying cause of the disease and Kay explains that between using cell-line analysis and trials in humans using mice is vital to confirm her theories.

She believes through personal experience that currently no progress can be made in improving human health without animal research; however, it is very important that the decision to use animals should never be taken lightly and the research is to be highly regulated and open.

Current European legislation requires the raising of welfare standards by protecting animals used for science and forces researchers to adopt the '3Rs'. An Italian-based initiative which wants to stop animal research is repealing this legislation and Kay is concerned that if successful, the result would be a step backwards for animal welfare in Europe and overall, not good for progress in science and medicine.

http://www.nature.com/news/keep-the-directive-that-protects-research-animals-1.17479?WT.ec_id=NATURE-20150507

Terrestrial animal tracking as an eye on life and planet

Monitoring or tracking the movement of animals provides a greater understanding in patterns of biodiversity, biological features of different species and how the ecosystem works.

Scientists have been using electronic tags to track animal movement for over 50 years but the data were limited because of the difficulty in finding and recording animal locations. However, technology has revolutionised data collection and added new perspective and insights to animal behaviour and movement.

Tracking will become less invasive through refined devices such as miniature tags powered by solar panels and through data collection by satellites and mobile phones. Ultimately, the range and size of data available will be used to create integrative models of animal location, movement and behaviour. The tracking data should be stored in data repositories and made available online to organisations and other scientists thus reducing the need for more data collection.

<http://www.sciencemag.org/content/348/6240/aaa2478.full.pdf>

Animal testing at odds with German public opinion

In 2014, a video of rhesus monkeys suffering the effects of skull implants and locked up with hands unable to touch their faces was shown on German television.

As a result relentless abuse was directed at Nick Logothetis, the Head of the Max Planck Institute, with local protests following. City prosecutors opened an investigation into the Institute's practices expecting

a breach of the Animal Protection Act; however, no charges have been filed.

Under the stress from the ordeal, Logothetis declared that in future he will only experiment on rodents. German scientists were quick to react and believed Logothetis bowed under the pressure from the activists and should have stood up for the principles of science. They also believed the extremists should have been investigated and not the scientists. A spokesperson from the Institute stated that the Institute will continue testing on primates.

Statistical data show that the Institute is going against the beliefs of the German people as a survey from 2003 showed that one in five support animal testing. Despite their beliefs, data from 2013 show that animal testing in Germany is mostly on the rise.

<http://www.dw.de/animal-testing-at-odds-with-german-public-opinion/a-18431227>

Animal Behaviour: Inside the cunning, caring and greedy minds of fish

Redouan Bshary grew up in Germany and is a behavioural physiologist. His studies on tree-living monkeys on the Ivory Coasts showed that different species collaborated for protection from a predator and this led to his fascination on why animals cooperate at times when it's not their natural behaviour.

Bshary's research led to observational studies in the social behaviour of fish and he gathered ample proof that fish engage in a range of social behaviours which he assumed resulted from simple evolution. Bshary knew that these behaviours had also been observed in primates and primatologists had claimed these observations as the 'social brain' theory whereby the primates evolved large brains to manage complicated social systems. To disprove the theory, Bshary tested fish against primates in problem-solving tests with the fish solving the problem first and moving on to winning a more advanced test.

Through his research Bshary has changed the opinion of animal intellect whereby humans and primates were thought to be superior and has shown that most fish species do have a type of intelligence.

http://www.nature.com/news/animal-behaviour-inside-the-cunning-caring-and-greedy-minds-of-fish-1.17614?WT.ec_id=NEWS-20150528

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