
THE WISDOM OF RUSSELL AND BURCH

1. *The Concept, Sources and Incidence of Inhumanity and its Diminution or Removal Through Implementation of the Three Rs*



R.L. Burch and W.M.S. Russell

The concepts expounded by W.M.S. Russell and R.L. Burch in the 1950s in their outstanding book, *The Principles of Humane Experimental Technique*,¹ are now the basis of many national and international laws and regulations on the proper use of laboratory animals. They were the outcome of a project proposed by Charles Hume, the founder of the Universities Federation for Animal Welfare.²

Their underlying philosophy concerned the *concept of inhumanity*, which they saw as “an objective assessment of the effects of any procedures on the animal subject”, without implying “any criticism or even psychological description of persons practising any given procedure”. They judged the *central problem* to be “that of determining what is and what is not humane, and how humanity can be promoted without prejudice to scientific and medical aims”.

Chapter 2 of *The Principles* comprises a brilliant discussion on inhumanity, which considers pain and fear, and the “rather more general notion of distress”,

taking into account the different levels of consciousness and intelligence in animals in relation to our concern for their welfare. It introduces the provocative thought that “inhumane procedures are those which drive the animal’s mood down. Removing inhumanity must ultimately mean driving the animal as near the other end of the scale as we can. More humane means less inhumane.”

However, it is Chapter 4, on *The Sources, Incidence and Removal of Inhumanity*, which is of vital significance. It begins with a discussion of the important distinction between *direct inhumanity*, “the infliction of distress as an unavoidable consequence of the procedure employed”, and *contingent inhumanity*, “the infliction of distress as an incidental and inadvertent by-product of the use of the procedure, which is not necessary for its success”.

Russell and Burch emphasised that contingent inhumanity is almost always detrimental to the achievement of the objective of an experiment, but that much could be done to avoid it. Direct inhumanity, being unavoidable, is a totally different matter, and they discussed it in terms of *incidence* (e.g. in control and experimental groups), *severity* (e.g. the severity of a procedure in those animals that are affected), and *special character* (e.g. post-operative pain and distress, effects of particular pathogens, or death due to various types of toxic chemical).

They saw the avoidance of contingent inhumanity as mainly a matter of good husbandry, diligent care and common sense, but their priceless gift, of equal value to biomedical science and animal welfare, was offered when they said: “We turn now to consideration of the ways in which [direct] inhumanity can be and is being diminished or removed. These ways can be discussed under the three broad headings of *Replacement, Reduction, and Refinement*, [which] have conveniently been referred to as the Three Rs of humane technique.”³

Russell and Burch’s definitions and discussions on the Three Rs will be considered in future issues of *PiLAS*, but let us close this short introduction with the words of *Article 4: Principles of replacement, reduction and refinement*, in *Directive 2010/63/EU on the protection of animals used for scientific purposes*,⁴ the provisions of which will come into force in the Member States of the European Union in January 2013:

- “1. Member States shall ensure that, wherever possible, a scientifically satisfactory method or testing strategy, not entailing the use of live animals, shall be used instead of a procedure.
- “2. Member States shall ensure that the number of animals used in projects is reduced to a minimum without compromising the objectives of the project.
- “3. Member States shall ensure refinement of breeding, accommodation and care, and of methods used in procedures, eliminating or reducing to the minimum any possible pain, suffering, distress or lasting harm to the animals.”

All those who are in any way responsible for activities related to this Directive or the national laws and regulations of the Member States which are in accordance with it, have a legal duty and a moral obligation to act according to these principles.

References and Notes

¹ Russell, W.M.S. & Burch, R.L. (1959). *The Principles of Humane Experimental Technique*. xiv + 238 pp. London, UK: Methuen.

² Balls, M. (2009). The origins and early development of the Three Rs concept. *ATLA* **37**, 255-265.

³ Russell, W.M.S. (1957). The increase of humanity in experimentation: Replacement, Reduction and Refinement. *Collected Papers of the Laboratory Animals Bureau* **6**, 23-25.

⁴ Anon. (2010). *Directive 2010/63/EU* of the European Parliament and of the Council of 22 September 2010 on the protection of animals used for scientific purposes. *Official Journal of the European Union* **L276**, 20.10.2010, 33-79.

The Principles of Humane Experimental Technique is now out of print, but the full text can be found at http://altweb.jhsph.edu/pubs/books/humane_exp/het-toc. An abridged version, *The Three Rs and the Humanity Criterion*, by Michael Balls (2009) can be obtained from FRAME.

Submissions for consideration for publication in *PiLAS* are welcome.

Please send articles to susan@frame.org.uk, or by post to Susan Trigwell, FRAME, Russell and Burch House, 96-98 North Sherwood Street, Nottingham NG1 4EE, UK. Instructions to Authors are available from the above, or from the *PiLAS* website, www.atla.org.uk. All articles considered for publication will be peer-reviewed.

Some possible topics for consideration in future issues are:

- ❖ the value of models and their uses
- ❖ the planning of experiments
- ❖ the analysis of scientific data
- ❖ the use of non-human primates and, in particular, great apes as laboratory animals
- ❖ the breeding, supply and transport of laboratory animals
- ❖ the re-use of animals
- ❖ re-homing
- ❖ the humane killing of animals
- ❖ the rodent bioassay for carcinogenicity
- ❖ reproductive toxicity tests
- ❖ animal experimentation for the benefit of animals
- ❖ the importance of species differences
- ❖ whether the use of humane endpoints is always humane
- ❖ who actually are the vets’ clients?
- ❖ is more suffering for the few better than less suffering for the many?
- ❖ do some animals matter more than others?
- ❖ should there be limits on genetic modification?
- ❖ is it acceptable to humanise animals?