

# **Weighing Ethical Decisions Against the Benefits of Research**

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## **My Perspective as a Category A and AEEC EO**

- ◆ **Early days**
- ◆ **A strong degree of interest in the science, while recognising that some is better than others**
- ◆ **A compassion for and an empathy with animals that has stood the test of time**
- ◆ **Adds up to something approaching a passion for the animal ethics process**

## **ANU/MAWA Initiative**

- ◆ **Appointment of a Senior Fellow to research alternatives to the use of animals in the biomedical sciences**
- ◆ **ACAAR (Australian Centre for Alternatives to Animal Research)**

## **The Code**

- ◆ **2.2.15: Information provided in proposals must be sufficient to satisfy the AEC that the proposed use of animals is justified by weighing the predicted scientific or educational value of the proposal against the potential impact on the welfare of the animals. (An essential component is full consideration of the 3 Rs)**

## **The 3R's and addressing the impact**

- ◆ **Replacement where feasible**
- ◆ **Reduction has implications for cost relative to animal numbers**
- ◆ **Refinement offers plenty: Anaesthetics, analgesics, environmental enrichment, clinical score sheets, to name a few**

## **But what about the refinement provided by.....**

- ◆ **Good experimental design including the choice of methods and materials that have the potential to significantly reduce the cost to the animal and at the same time have the potential to produce a valuable scientific income**

## Wild dog and fox control

- ◆ The current agent used is 1080
- ◆ Toxicosis that includes prolonged convulsions and hyperexcitability
- ◆ Causes death in none target species

## Proposal to the AEC

- ◆ PAPP has previously been shown to be selective against eutherian carnivores and relatively non-toxic to other taxa trialled
- ◆ PAPP toxicity results from the conversion of Hb to methaemoglobin, with latter unable to combine oxygen. This leads to progressive lethargy, coma and death
- ◆ The proposal was to trial a granulated edible preparation and to also see if the process could be reversed

## **This is a death as an endpoint study-how did it go**

- ◆ **Trial animals died with little sign of distress. It was concluded that PAPP administered in an edible granular form was a preferable alternative to 1080**
- ◆ **Methylene blue was able to reverse the toxicosis. Positive implications for dogs accidentally poisoned**
- ◆ **The experimental outcomes appear to have justified the deaths of the experimental animals**

## **Macaque Neuroscience Study**

- ◆ **Insertion of electrodes into the brain of the conscious monkey for single cell recording**
- ◆ **Aim to identify neural mechanisms that underlie integrative functions of the brain**
- ◆ **“This is essential to understand the pathology in a number of neurological disorders relating to perceptual disturbances, attention deficits and memory dysfunction”**



## Proposed Stages

- ◆ **Monkeys trained in behavioural tasks**
- ◆ **Light weight frame fitted to head under surgical conditions**
- ◆ **Micro-electrode introduced through small hole in skull**
- ◆ **Recordings made while monkeys consciously doing tasks of matching computer images**

## **The AEEC went through interesting times...**

- ◆ **Three protest marches**
- ◆ **Press and TV coverage**
- ◆ **External scientific opinion sought**
- ◆ **Six months AEEC consideration**
- ◆ **Finally consensus for study approval but under conditions of tight monitoring**

## **What resulted... Cost to the animals?**

- ◆ **The two monkeys willingly left their indoor-outdoor cage to climb into a chair and match computer images**
- ◆ **The skull attachment was increasingly refined**
- ◆ **The monkeys did not exhibit signs of pain at any stage. Where the electrodes are inserted has no pain receptors**
- ◆ **They both lived until recently when one was euthanised with an unrelated condition**

## **The resulting scientific value...**

- ◆ **Publications resulted in prestigious journals such as Science**
- ◆ **That scientific publication the Melbourne Age, in its Education News, gave the work an impressive review. It mentioned that monkeys were used**