




Galen of Pergamum (129-199)
- first record of vivisection?




Alcmaeon of Croton - c. 500 BC
- brain, not heart the central organ of sense,
- optic nerve function




Hippocrates - born in 460 BC
Observation and study of human body.
Rational explanation for disease.




Aristotle c. 350 BC
- Man rational and therefore at head




Romans
- up to 5000 animals a day slaughtered in amphitheatres




Virgil, Ovid, Cicero
- great compassion for animals



Plutarch, Seneca
- man has a duty of kindness to humans and animals



St. Francis
- animals had souls heretical



St. Thomas Aquinas (1225-1274)
- only humans are rational.
Animals exist for human needs and have no moral status /soul

1348 - Bubonic plague




Almost half of Europe's population wiped out.
Local, regional or pan- European outbreaks for next 200 years.

Animals for sport Hunts - mass extinctions
Bull baiting, cock fighting

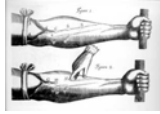
Witch trials
Holy statues

Renaissance



- renewed interest in Science and Philosophy

William Harvey (1578-1657)



Demonstrated blood circulation using vivisection (c.1620)

A significant increase in vivisection followed



Rene Descartes (1596-1650)

Expanded on Christian humanist philosophy

- the soul distinguishes the human from all other animals
- 'beast machine'
- uncoiled cogs of robots



O'Meara (1655)

"the miserable torture of vivisection surely places the body in an unnatural state".

Robert Boyle, Robert Hooke

Concern for welfare of their subjects but convinced that the costs were justified.



Samuel Johnson in The Idler (c.1770)

"Among the inferior Professors of medical knowledge is a race of wretches, whose lives are varied only by varieties of cruelty; the truth is that by knives, fire and poison knowledge is not always sought and very seldom attained. and if knowledge of physiology has been somewhat increased, he surely buys knowledge dear who learns the use of the lacteals at the expense of his humanity."



Jeremy Bentham (1748-1832)

"The question is not - Can they reason? nor Can they talk? but Can they suffer?"



Bentham (cont.)

- All humans worthy of equal and humane consideration
- *'the day may come when the rest of animal creation may acquire those rights which never could have been withholden from them except by the hand of tyranny'*



1790's - agitation for anti-cruelty laws.

- (butchers convicted after cutting off sheep's feet).

1822 - Martin's Act

- Offence to wantonly abuse, beat or ill-treat any animal the property of any other person or persons.

1835 - Joseph Pease

- others property clause removed.



Francois Magendie - 1820's



- public lectures and demonstrations involving vivisection



Marshall Hall (1830s)

5 guiding principles - basis of 1876 CAA



Five guiding principles

1. Is the experiment necessary? Alternatives/observation
2. Does it have the possibility of achieving the desired result? Scientific validity
3. Can the protocol be modified to reduce discomfort?
4. Has the experiment been done before?
5. Will the protocol produce valid results? Statistical validity



1824 - SPCA founded by Richard Martin

1835 - Royal patronage

1840 - RSPCA

1850's - anaesthesia.
- RSPCA object to vivisection

1859 - Darwin
'The Origin of Species'

1874 - Victoria objects to vivisection

1875 - Bill presented to Commons

1876 - Cruelty to Animals Act



Frances Power-Cobbe (1822-1904)

- Victoria Street Society for the Protection of Animals from Vivisection
- Victoria Street Society for the Abolition of Vivisection after 1876 Act
- 1898 - Founded the British Union for the Abolition of Vivisection

1876 Cruelty to Animals Act

- Research must advance knowledge to save life or alleviate suffering
- Persons carrying out experiments must hold valid licence
- May only be carried out in registered premises which are regularly inspected
- Licence applications signed by specified persons (medical professors and presidents of learned societies)
- Certificates signed by same grant exemption from restrictions

What Victoria Street Society wanted

- Anaesthesia for all animals undergoing vivisection
- No recovery from anaesthesia
- No public demonstrations of vivisection
- Prohibition on the use of dogs, cats and horses for research or teaching involving vivisection

Russell & Burch - 3 Rs (1959)

'Principles of Humane Experimental Technique' - 1959

- **Reduction** in the number of animals used to obtain information of given amount and precision
- **Refinement** - decrease in the incidence or severity of inhumane procedures applied to those animals which still have to be used
- **Replacement** - substitution of insentient material for conscious living animals

European Convention (ETS123 -1986)

- European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes
- Part 1 - General principles & definitions
- Part 2 - General care & accommodation of animals (Appendix A)
- Part 3 - Conduct of regulated procedures
- Part 4 - Authorisation of procedures
- Part 5 - Regulations for breeding and supplying establishments
- Part 6 - Regulations for user establishments
- Part 7 - Education & training of researchers + animal care staff
- Part 8 - Collection of statistical information re procedures

EU Directive 86/609/EEC

- Essentially implementation of ETS 123. Relevant guidelines often refer to multilateral consultation of parties to ETS123. ETS Appendix A (revised 2006) = Directive Annex 2
- Initially implemented in Ireland via SI 17/1994 - later replaced by SI 566/2002 - both amending 1876 CAA
- Implemented in UK via all new 1986 Scientific Procedures Act

CAA licence application: objectives

- **Reduce** the number of animals used in scientific procedures by avoiding duplication and using the minimum number of animals possible, consistent with good scientific practice (Literature review & good experimental design)
- **Refine** experimental technique to decrease the incidence and severity of any pain, suffering or distress (Education and training, anaesthesia & analgesia, best practice techniques)
- **Replace** the use of sentient animals with non-sentient or less sentient alternatives. (Searches for alternatives)

..... via signatures of competent person and professors / presidents of learned societies - BUT ???

Scientific Procedures

- Prior approval
- Scientific value
- Minimum distress
- Animal of lowest sensibility possible
- Minimum number of animals possible
- Established humane end-point

Persons carrying out procedures

- Must have an appropriate licence
- Legally liable (jail and criminal record)
- Must be adequately trained to handle animals and carry out the procedures
- Duty of care for the animals they use
- Stated numbers must not be exceeded
- Must keep records of all procedures and make annual returns to DOH

Animals used

- Appropriate housing, diet and care
- Observed daily
- Humanely killed if severity of procedure exceeded
- May not be re-used in same or another procedure

Specific requirements

- Original work, likely to make contribution to scientific knowledge
- Must show evidence of serious consideration to alternatives
- Approved premises (facilities/animal welfare)
- Signature of head of relevant discipline
- Statutory signatures

Specific requirements (cont.)

- Certificates for teaching and if all work not carried out under G/A
- Separate protocol - full details of all procedures
- Categorise severity of pain
- Purpose bred animals
- Responsibilities - if pain or distress
- Humane killing

Licensee duties

1. Each licensee shall record the following information in respect of each experiment performed under the licence:

- (a) the date on which the experiment was performed;
- (b) the address of the establishment where the experiment was performed;
- (c) the nature, purpose and duration of the experiment;
- (d) the number of animals used in the experiment;
- (e) the species and strain of each animal used in the experiment;
- (f) whether the animal was obtained from a breeding establishment, a supplying establishment or another source;
- (g) whether anaesthesia, analgesic or another method was used to relieve the animal's pain, distress or suffering and, if so, the type of anaesthesia, analgesic or method;
- (h) whether the animal had been used in a previous experiment;
- (i) whether the animal was kept alive, set free or killed at the end of the experiment;
- (j) if the animal was killed, the final disposition of the carcass.

2. The licensee shall keep the records referred to in subsection (1) for not less than three years after the date on which the information was first recorded

Policing

- Inspectors in UK
- Institutional responsibility in USA
- Mix of both in Ireland
- Up to scientists to police the welfare to appease welfare / rights groups
- Ethics committees

The role of Ethics Committees

- Ethical review of protocols increasingly required for research funding and publication in journals
- Ethics committees comprise named day-to-day care persons, NVS, scientists, statistician, lay-person
- Thorough review of detailed protocols
- Dialogue with applicants allows amendments to achieve objectives (scientific & ethical)
- Retrospective review informs future proposals / recommendations

Ethics committees – ancillary activities

- Contribute to institutional research policies
- Arrange inspections of registered premises
- Promote 3Rs via training & seminars
- Provide assurance for the public
- Revised directive will link regulatory approval with local ethical approval
- Projects rather than persons approved so current Irish system needs to be amended