Animal Welfare

Jean Theriault

First Edition, 2012

ISBN 978-81-323-4081-2

Published by:
White Word Publications
4735/22 Prakashdeep Bldg,
Ansari Road, Darya Ganj,
Delhi - 110002
Email: info@wtbooks.com

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Chapter 1

Animal Welfare

A four-week-old puppy, found alongside a road after flooding in West Virginia, is fed at an Emergency Animal Rescue Service shelter in the Twin Falls State Park.

Animal welfare is the physical and psychological well-being of animals. The term *animal welfare* can also mean human concern for animal welfare or a position in a debate on animal ethics and animal rights.

Systematic concern for animal welfare can be based on awareness that non-human animals are sentient and that consideration should be given to their well-being, especially when they are used by humans. These concerns can include how animals are killed for

food, how they are used for scientific research, how they are kept as pets, and how human activities affect the survival of endangered species.

An ancient object of concern in some civilizations, animal welfare began to take a larger place in western public policy in 19th-century Britain. Today it is a significant focus of interest or activity in veterinary science, in ethics, and in animal welfare organizations.

There are two forms of criticism of the concept of animal welfare, coming from diametrically opposite positions. One view, dating back centuries, asserts that animals are not consciously aware and hence are unable to experience poor welfare. The other view is based on the animal rights position that animals should not be regarded as property and any use of animals by humans is unacceptable. Some authorities thus treat animal welfare and animal rights as two opposing positions. Accordingly, some animal right proponents argue that the perception of better animal welfare facilitates continued and increased exploitation of animals. Others see the increasing concern for animal welfare as incremental steps towards animal rights.

Definitions

In animal ethics, the term *animal welfare* often means animal welfarism.

In Saunders Comprehensive Veterinary Dictionary, animal welfare is defined as "the avoidance of abuse and exploitation of animals by humans by maintaining appropriate standards of accommodation, feeding and general care, the prevention and treatment of disease and the assurance of freedom from harassment, and unnecessary discomfort and pain."

Donald Broom defines the welfare of an animal as "its state as regards its attempts to cope with its environment. This state includes how much it is having to do to cope, the extent to which it is succeeding in or failing to cope, and its associated feelings." He states that "Welfare will vary over a continuum from very good to very poor and studies of welfare will be most effective if a wide range of measures is used."

Yew-Kwang Ng defines animal welfare in terms of welfare economics: "Welfare biology is the study of living things and their environment with respect to their welfare (defined as net happiness, or enjoyment minus suffering). Despite difficulties of ascertaining and measuring welfare and relevancy to normative issues, welfare biology is a positive science."

Animal welfarism

Animal welfarism, also known simply as *welfarism* or *animal welfare*, is the position that it is morally acceptable for humans to use non-human animals, provided that adverse effects on animal welfare are minimized as far as possible, short of not using the animals at all. An example of welfarist thought is Hugh Fearnley-Whittingstall's meat manifesto. Point three of eight is:

Think about the animals that the meat you eat comes from. Are you at all concerned about how they have been treated? Have they lived well? Have they been fed on safe, appropriate foods? Have they been cared for by someone who respects them and enjoys contact with them? Would you like to be sure of that? Perhaps it's time to find out a bit more about where the meat you eat comes from. Or to buy from a source that reassures you about these points.

Robert Garner describes the welfarist position as the most widely-held in modern society. He states that one of the best attempts to clarify this position is given by Robert Nozick:

Consider the following (too minimal) position about the treatment of animals. So that we can easily refer to it, let us label this position "utilitarianism for animals, Kantianism for people." It says: (1) maximize the total happiness of all living beings; (2) place stringent side constraints on what one may do to human beings. Human beings may not be used or sacrificed for the benefit of others; animals may be used or sacrificed for the benefit of other people or animals only if those benefits are greater than the loss inflicted.

Welfarism is often contrasted with the animal rights and animal liberation positions, which hold that animals should not be used by humans, and should not be regarded as their property. However, it has been argued that both welfarism and animal liberation only make sense if you assume that animals have "subjective welfare". There is some evidence that the observed difference between human belief in animal welfare and animal rights originates from two distinct attitudes towards animals:

1. Attitudes towards suffering; and
2. Reverence for animals.

Motivation

Motivations to improve the welfare of animals stems from sympathy and empathy. It can also be based on self-interest. For example, animal producers might improve welfare in order to meet consumer demand for products from high welfare systems. Typically, stronger concern is given to animals that are useful to humans (farm animals, pets etc.) than those that are not (pests, wild animals etc.). The different level of sentience that various species possess, or the perception of such differences, also create a shifting level of concern. Somewhat related to this is size, with larger animals being favored.

There is some evidence to suggest that empathy is an inherited trait. Women have greater concern for animals than men in some societies, possibly the result of it being an evolutionarily beneficial trait in societies where women take care of domesticated animals while men hunt. Interestingly, more women have animal phobias than men. But animal phobias are at least partly genetically determined, and this indicates that attitudes towards animals have a genetic component. Also, children exhibit empathy for animals at a very early age , when external influences cannot be an adequate explanation.

Laws punishing cruelty to animals tend to not just be based on welfare concerns but the belief that such behavior has repercussions toward the treatment of other humans by the animal abusers. Another argument against animal cruelty is based on aesthetics.

External factors that affect people's concern for animal welfare include affluence, education, cultural heritage and religious beliefs. Increased affluence in many regions for the past few decades afforded consumers the disposable income to purchase products from high welfare systems. The adaptation of more economically efficient farming systems in these regions were at the expense of animal welfare and to the financial benefit of consumers, both of which were factors in driving the demand for higher welfare for farm animals.

Interest in animal welfare continues to grow, with increasing attention being paid to it by the media, governmental and non-governmental organizations. The volume of scientific research on animal welfare has also increased significantly.

History, principles, practice

Systematic concern for the well-being of other animals probably arose in the Indus Valley Civilization as the religious ancestors return in animal form, and that animals must therefore be killed with the respect due to a human. This belief is exemplified in the existing religion, Jainism, and in varieties of other Indian religions. Other religions, specially those with roots in the Abrahamic religions, treat animals as the property of their owners, codifying rules for their care and slaughter intended to limit the distress, pain and fear animals experience under human control.

From the outset in 1822, when British MP Richard Martin shepherded a bill through Parliament offering protection from cruelty to cattle, horses, and sheep (earning himself the nickname *Humanity Dick*), the welfare approach has had human morality, and humane behaviour, at its central concern. Martin was among the founders of the world's first animal welfare organization, the Society for the Prevention of Cruelty to Animals, or SPCA, in 1824. In 1840, Queen Victoria gave the society her blessing, and it became the RSPCA. The society used members' donations to employ a growing network of inspectors, whose job was to identify abusers, gather evidence, and report them to the authorities.

But significant progress in animal welfare did not take place until the late 20th century. In 1965, the UK government commissioned an investigation - led by Professor Roger Brambell - into the welfare of intensively farmed animals, partly in response to concerns raised in Ruth Harrison's 1964 book, Animal Machines. On the basis of Professor Brambell's report, the UK government set up the Farm Animal Welfare Advisory Committee in 1967, which became the Farm Animal Welfare Council in 1979. The committee's first guidelines recommended that animals require the freedoms to "stand up, lie down, turn around, groom themselves and stretch their limbs". The guidelines have since been elaborated to become known as the Five Freedoms:

- Freedom from thirst and hunger - by ready access to fresh water and a diet to maintain full health and vigour.
- Freedom from discomfort - by providing an appropriate environment including shelter and a comfortable resting area.
- Freedom from pain, injury, and disease - by prevention or rapid diagnosis and treatment.
- Freedom to express normal behavior - by providing sufficient space, proper facilities and company of the animal's own kind.
- Freedom from fear and distress - by ensuring conditions and treatment which avoid mental suffering.

A number of animal welfare organisations are campaigning to achieve a Universal Declaration on Animal Welfare (UDAW) at the United Nations. In principle, the Universal Declaration will call on the United Nations to recognise animals as sentient beings, capable of experiencing pain and suffering, and to recognise that animal welfare is an issue of importance as part of the social development of nations worldwide. The campaign to achieve the UDAW is being co-ordinated by the World Society for the Protection of Animals, with a core working group including Compassion in World Farming, the RSPCA, and the Humane Society International (the international branch of HSUS).

Farm animals

Egg laying hens (chickens) in a factory farm battery cage

Concern for farm animals is mainly focused on factory farming, where farm animals are raised in confinement at high stocking density. Issues revolve around the limiting of natural behavior in animals, and invasive procedures such as debeaking and mulesing. Other issues include methods of animal slaughter, especially ritual slaughter.

While the killing of animals need not necessarily involve suffering, the general public considers killing an animal an act that reduces its welfare. This leads to concerns with premature slaughtering, such as the chick culling. This applies in a lesser extent to all food animals.

Animal welfare science is an emerging field that seeks to answer questions raised by the use of animals, such as whether hens are frustrated when confined in cages, or whether the psychological well-being of animals in laboratories can be maintained.

Welfare laws

United States

On November 5, 2002, Florida voters passed Amendment 10, an amendment to the Florida Constitution banning the confinement of pregnant pigs in gestation crates. The Amendment passed by a margin of 55% for and 45% against. On November 7, 2006, Arizona voters passed Proposition 204 with 62% support. The measure prohibits the confinement of calves in veal crates and breeding sows in gestation crates. On June 28, 2007, Oregon Governor Ted Kulongoski signed a measure into law prohibiting the confinement of pigs in gestation crates (SB 694, 74th Leg. Assembly, Regular Session). On May 14, 2008, Colorado Governor Bill Ritter signed into law a bill, SB 201, that phases out gestation crates and veal crates.

European Union

Germany, Sweden, and Austria have all banned battery cages for egg-laying hens. The entire European Union is phasing out battery cages by 2012.

Laboratory animals

In animal testing, the well-being of individual animals tend to be overridden by the potential benefits their sacrifice can bring to a large number of other animals or people. This utilitarian approach might allow intense suffering to be inflicted on individual animals if the trade-off is considered worthwhile, while a more welfare-based approach would afford all animals the right to a minimum standard of welfare.

Other welfare issues includes the quality of animal sources and housing conditions.

Criticisms

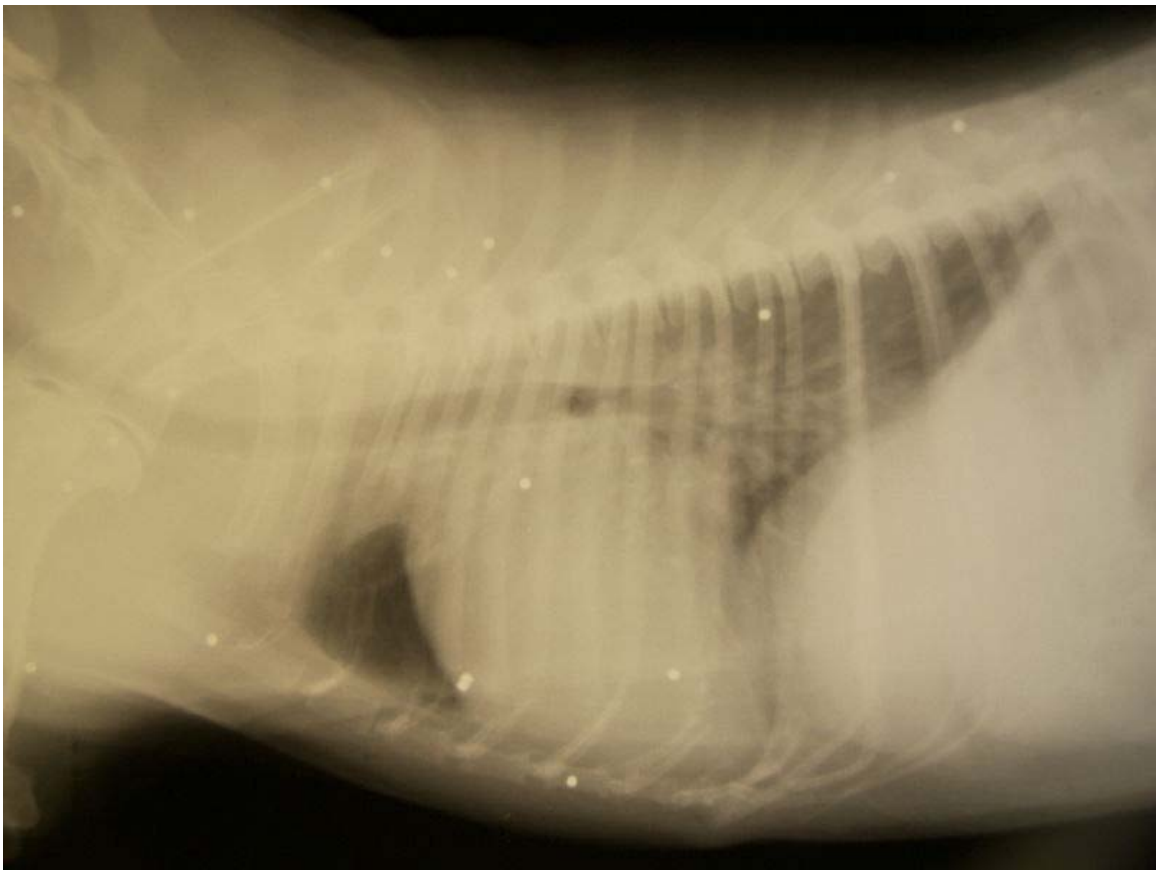
At one time, many people denied that animals could feel anything, and thus the concept of animal welfare was meaningless. For example, many Cartesians were of this opinion. Descartes wrote that animals act "without consciousness", much like a machine. In addition, there are accounts of Descartes visiting slaughter houses to observe how animals died. Believing that the animals were devoid of sentience, Descartes thought the death throes of animals was akin to "taking apart a spring-driven clock". In the *Discourse*, published in 1637, Descartes wrote that the ability to reason and use language involves being able to respond in complex ways to all the "contingencies of life", something that animals "clearly cannot do". He argued from this that any sounds animals make do not constitute language, but are simply "automatic responses to external stimuli".

Animal rights advocates, such as Gary L. Francione and Tom Regan, argue that the animal welfare position (advocating for the betterment of the condition of animals, but without abolishing animal use) is inconsistent in logic and ethically unacceptable. However, there are some animal rights groups, such as PETA, which support animal welfare measures in the short term to alleviate animal suffering until all animal use is ended. "If I only could have one thing, it would be to end suffering," said Newkirk. "If you could take things from animals and kill animals all day long without causing them suffering, then I would take it...Everybody should be able to agree that animals should not suffer if you kill them or steal from them by taking the fur off their backs or take their eggs, whatever. But you shouldn’t put them through torture to do that."

Abolitionism (animal rights) holds that focusing on animal welfare not only fails to challenge animal suffering, but may actually prolong it by making the exercise of property rights over animals appear less unattractive. The abolitionists' objective is to secure a moral and legal paradigm shift, whereby animals are no longer regarded as property.

Chapter 2

Cruelty to Animals



Chest X-ray of a shot cat. White spots are lead shot.

Cruelty to animals or **animal abuse** is the infliction of suffering or harm upon animals, other than humans, for purposes other than self-defense. More narrowly, it can be harm for specific gain, such as killing animals for food or for their fur. Diverging viewpoints are held by jurisdictions throughout the world.

Broadly speaking, there are two approaches to the issue. The animal welfare position holds that there is nothing inherently wrong with using animals for human purposes, such as food, clothing, entertainment, and research, but that it should be done in a humane way that minimizes unnecessary pain and suffering. Animal rights theorists criticize this position, arguing that the words "unnecessary" and "humane" are subject to widely differing interpretations, and that the only way to ensure protection for animals is to end their status as property, and to ensure that they are never used as commodities. Laws concerning animal cruelty are designed to prevent needless cruelty to animals, rather than killing for other aims such as food, or they concern species not eaten as food in the country involved, such as those regarded as pets.

In law

Many jurisdictions around the world have enacted statutes which forbid cruelty to some animals but these vary by country and in some cases by the use or practice.

Australia

In Australia, many states have enacted legislation outlawing cruelty to animals, however, it is argued that welfare laws do not adequately extend to production animals. Whilst police maintain an overall jurisdiction in prosecution of criminal matters, in many states officers of the RSPCA and other animal welfare charities are accorded authority to investigate and prosecute animal cruelty offenses.

Asia

Japan

Animal experiments are regulated by the 2000 Law for the Humane Treatment and Management of Animals, which was amended in 2006. This law requires those using animals to follow the principles outlined in the 3Rs and use as few animals as possible, and cause minimal distress and suffering. Regulation is at a local level based on national guidelines, but there are no governmental inspections of institutions and no reporting requirement for the numbers of animals used.

China

As of 2006 there were no laws in China governing acts of cruelty to animals. In certain jurisdictions such as Fuzhou, dog control officers may kill any unaccompanied dogs on sight. However, the People's Republic of China is currently in the process of making changes to its stray-dog population laws in the capital city, Beijing. Mr. Zheng Gang who is the director of the Internal and Judicial Committee which comes under the Beijing Municipal People's Congress (BMPC), supports the new draft of the Beijing Municipal Regulation on Dogs from the local government. This new law is due to replace the current Beijing Municipal Regulation on Dog Ownership, introduced in 1889. The current regulation talks of "strictly" limiting dog ownership and controlling the number of

dogs in the city. The new draft focuses instead on "strict management and combining restrictions with management." There are no government supported charitable organizations like the RSPCA, which monitors the cases on animal cruelty, so that all kinds of animal abuses, such as to fish, tigers, and bears, are to be reported for law enforcement and animal welfare.

In September 2009, legislation was drafted to address deliberate cruelty to animals in China. If passed, the legislation would offer some protection to pets, captive wildlife and animals used in laboratories, as well as regulating how farm animals are raised, transported and slaughtered.

Hong Kong

As of 2010, Hong Kong has supplemented or replaced the laws against cruelty with a positive approach using laws that specify how animals should be treated. The government department primarily responsible for animal welfare in Hong Kong is the Agriculture, Fisheries and Conservation Department (AFCD).

Laws enforced by the AFCD include these:

- the Prevention of Cruelty to Animals Ordinance (also enforced by the police)
- the Public Health (Animals and Birds) Ordinance (including regulations for licences imposed on livestock keepers and animal traders and a Code of Standards for Licensed Animal Traders)
- the Dogs and Cats Ordinance
- the Pounds Ordinance
- the Rabies Ordinance
- the Wild Animals Protection Ordinance

In addition, the Food and Environmental Hygiene Department (FEHD) does the following:

- enforces the Public Health and Municipal Services Ordinance, which includes regulations for slaughterhouses and wet markets
- publishes a Code of Practice for the Welfare of Food Animals (which describes their transport)
- publishes Operational Guidelines for the Welfare of Food Animals at Slaughterhouses

The Department of Health does the following:

- enforces the Animals (Control of Experiments) Ordinance.
- publishes a Code of Practice for the Care and Use of Animals for Experimental Purposes

As of 2006, Hong Kong has a law titled "Prevention of Cruelty to Animals Ordinance", with a maximum 3 year imprisonment and fines of HKD$200,000.

Taiwan

The Taiwanese Animal Protection Act was passed in 1998, imposing fines up to NT$250,000 for cruelty. Criminal penalties for animal cruelty were enacted in 2007, including a maximum of 1 year imprisonment.

Middle East

Egypt

Egyptian law states that anyone who inhumanely beats or intentionally kills any domesticated animal may be jailed or fined, however, these laws are rarely enforced. The Egyptian Society for the Prevention of Cruelty to Animals was established by the British over a hundred years ago, and is currently administered by the Egyptians. The SPCA was instrumental in promoting a 1997 ban on bullfighting in Egypt.

In the ancient Egyptian law, the killers of cats or dogs were executed.

Saudi Arabia

Veterinarian Lana Dunn and several Saudi nationals report that there are no laws to protect animals from cruelty since the term is not well-defined within the Saudi legal system. They point to a lack of a governing body to supervise conditions for animals, particularly in pet stores and in the exotic animal trade with East Africa.

Europe

Germany, Switzerland, Sweden, and Austria have all banned battery cages for egg-laying hens. The entire European Union is phasing out battery cages by 2012. It is also illegal in many parts of Europe to declaw a cat.

Germany

In Germany, killing animals or causing significant pain (or prolonged or repeated pain) to them is punishable by imprisonment of up to three years or a financial penalty. If the animal is of foreign origin, the act may also be punishable as criminal damage.

Italy

Acts of cruelty against animals can be punished with imprisonment, for a minimum of three months up to a maximum of three years, and with a fine ranging from a minimum of 3.000,00 Euro to a maximum of 160.000,00 Euro, as for the law n°189/2004. The law

was passed mainly to crush the phenomenon of dog fighting, which in Italy is a clandestine blood sport fully controlled by organized crime.

United Kingdom

In the United Kingdom, cruelty to animals is a criminal offence for which one may be jailed for up to 51 weeks and may be fined up to £20,000.

On August 18, 1911, the House of Commons introduced the Protection of Animals Act 1911 (c.27) following lobbying by the Royal Society for the Prevention of Cruelty to Animals (RSPCA). The maximum punishment was 6 months of "hard labour" with a fine of 25 pounds.

In the London Police Act 1839, "fighting or baiting Lions, Bears, Badgers, Cocks, Dogs, or other Animals" was prohibited in London, with a penalty of up to one month imprisonment, with possible hard labour, or up to five pounds. The law laid numerous restrictions on how, when, and where animals could be driven, wagons unloaded, etc.. It also prohibited owners from letting mad dogs run loose and gave police the right to destroy any dog suspected of being rabid or any dog bitten by a suspected rabid dog. The same law prohibited the use of dogs for drawing carts. Up until then, dogs were used for delivering milk, bread, fish, meat, fruit, vegetables, animal food (the cat's-meat man), and other items for sale and for collecting refuse (the rag-and-bone man). As Nigel Rothfels notes, the prohibition against dogs pulling carts in or near London caused most of the dogs to be killed by their owners as they went from being contributors to the family income to unaffordable expenses. Cart dogs were replaced by people with handcarts. About 150,000 dogs were killed or abandoned. Erica Fudge quotes Hilda Kean:

At the heart of nineteenth-century animal welfare campaigns is the middle-class desire not to be able to see cruelty.
—Hilda Kean, *Animal Rights, 1998*

The Protection of Animals Act 1911 extended the ban on draft dogs to the rest of the kingdom. As many as 600,000 dogs were killed or abandoned.

Switzerland

The Swiss animal protection laws are among the strictest in the world, comprehensively regulating the treatment of animals including the size of rabbit cages, and the amount of exercise that must be provided to dogs.

In the canton of Zurich an animal lawyer, Antoine Goetschel, is employed by the canton government to represent the interests of animals in animal cruelty cases.

Americas

Mexico

In Mexico, there are little to no animal cruelty laws, however, it has been suggested that animal cruelty laws are slowly being implemented. The country's current policy usually condemns physical harm to animals as property damage to the owners of the abused animal. The Law of Animal Protection of the Federal District is wide-ranging, based on banning 'unnecessary suffering'. Similar laws now exist in most states. However, this is disregarded by much of the public and authorities.

United States

The primary federal law relating to animal care and conditions in the US is the Animal Welfare Act of 1966, amended in 1970, 1976, 1985, 1990, 2002 and 2007. It is the only Federal law in the United States that regulates the treatment of animals in research, exhibition, transport, and by dealers. Other laws, policies, and guidelines may include additional species coverage or specifications for animal care and use, but all refer to the Animal Welfare Act as the minimum acceptable standard.

The AWA has been criticized by animal rights groups for excluding birds, rats and mice bred for research, and animals raised for food or fiber as well as all cold-blooded animals.

The Animal Legal Defense Fund releases an annual report ranking the animal protection laws of every state based on their relative strength and general comprehensiveness. In 2008's report, the top five states for their strong anti-cruelty laws were California, Illinois, Maine, Michigan, and Oregon. The five states with the weakest animal cruelty laws were Arkansas, Idaho, Kentucky, Mississippi, and North Dakota.

In Massachusetts and New York, agents of humane societies and associations may be appointed as special officers to enforce statutes outlawing animal cruelty.

In 2004, a Florida legislator proposed a ban on "cruelty to bovines," stating: "A person who, for the purpose of practice, entertainment, or sport, intentionally fells, trips, or otherwise causes a cow to fall or lose its balance by means of roping, lassoing, dragging, or otherwise touching the tail of the cow commits a misdemeanor of the first degree." The proposal did not become law.

In the United States, ear cropping, tail docking, the Geier Hitch, rodeo sports, and other acts are legal and sometimes condoned. Penalties for cruelty can be minimal, if pursued. Currently, 46 of the 50 states have enacted felony penalties for certain forms of animal abuse. However, in most jurisdictions, animal cruelty is most commonly charged as a misdemeanor offense. In one recent California case, a felony conviction for animal cruelty could theoretically net a 25 year to life sentence due to their three-strikes law, which increases sentences based on prior felony convictions.

In 2003, West Hollywood, California passed an ordinance banning declawing of house cats. In 2007, Norfolk, Virginia passed legislation only allowing the procedure for medical reasons. However, most jurisdictions allow the procedure.

State welfare laws

Several states have enacted or considered laws in support of humane farming.

- On November 5, 2002, Florida voters passed Amendment 10 by a margin of 55% for, amending the Florida Constitution to ban the confinement of pregnant pigs in gestation crates.
- On January 14, 2004, the bill AB-732 died in the California Assembly's Agriculture Committee. The bill would have banned gestation and veal crates, eventually being amended to include only veal crates. On May 9, 2007, the bill AB-594 was withdrawn from the California State Assembly. The bill had been effectively killed in the Assembly Agriculture Committee, by replacing the contents of the bill with language concerning tobacco cessation coverage under Medi-Cal. AB-594 was very similar to the current language of Proposition 2.
- On November 7, 2006, Arizona voters passed Proposition 204 with 62% support. The measure prohibits the confinement of calves in veal crates and breeding sows in gestation crates.
- On June 28, 2007, Oregon Governor Ted Kulongoski signed a measure into law prohibiting the confinement of pigs in gestation crates (SB 694, 74th Leg. Assembly, Regular Session).
- In January 2008, Nebraska State Senate bill LB 1148, to ban the use of gestation crates for pig farmers, was withdrawn within 5 days amidst controversy.
- On May 14, 2008, Colorado Governor Bill Ritter signed into law a bill, SB 201, that phases out gestation crates and veal crates.

Canada

The Animal Legal Defense Fund releases an annual report ranking the animal protection laws of every province and territory based on their relative strength and general comprehensiveness. In 2009, the top four, for their strong anti-cruelty laws, were British Columbia, Manitoba, Nova Scotia, and Ontario. The worst four were New Brunswick, Northwest Territories, Nunavut, and Quebec.

In theory and practice

There are many reasons why individuals abuse animals. Animal cruelty covers a wide range of actions (or lack of action). Learning about animal abuse has revealed patterns of behavior employed by abusers.

Animal cruelty is often broken down into two main categories: active and passive, also referred to as commission and omission, respectively.

Passive cruelty is typified by cases of neglect, in which the cruelty is a lack of action rather than the action itself. Examples of neglect are starvation, dehydration, parasite infestations, allowing a collar to grow into an animal's skin, inadequate shelter in extreme weather conditions, and failure to seek veterinary care when necessary.

In many cases of neglect in which an investigator believes that the cruelty occurred out of ignorance, the investigator may attempt to educate the pet owner, then revisit the situation. In more severe cases, exigent circumstances may require that the animal be removed for veterinary care.

Active cruelty implies malicious intent, as when a person has deliberately and intentionally caused harm to an animal, and is sometimes referred to as NAI (Non-Accidental Injury). Acts of intentional animal cruelty may be indicators of serious psychological problems. There is an intrinsic link between battered pets and battered women and children. The likelihood that women's shelter personnel will encounter women and children who have been threatened by batterers using animal abuse as a weapon is high. This is because more families in America have pets than have children. Secondly, the majority of pet owners are themselves parents with children. Thirdly, 64.1% of households with children under age 6, and 74.8% of households with children over age 6, also have pets. Lastly, as many as 71% of pet-owning women seeking shelter at safe houses have reported that their partner had threatened and/or actually hurt or killed one or more of their pets; 32% of these women reported that one or more of their children had also hurt or killed pets. Battered women report that they are prevented from leaving their abusers because they fear what will happen to the animals in their absence. Animal abuse sometimes is used as a form of intimidation in domestic disputes.

Medicine

Animal testing, Traditional medicine

Psychological disorders

One of the known warning signs of certain psychopathologies, including anti-social personality disorder, also known as psychopathic personality disorder, is a history of torturing pets and small animals, a behavior known as zoosadism. According to the *New York Times*, "[t]he FBI has found that a history of cruelty to animals is one of the traits that regularly appears in its computer records of serial rapists and murderers, and the standard diagnostic and treatment manual for psychiatric and emotional disorders lists cruelty to animals a diagnostic criterion for conduct disorders. "A survey of psychiatric patients who had repeatedly tortured dogs and cats found all of them had high levels of aggression toward people as well, including one patient who had murdered a young boy." Robert K. Ressler, an agent with the Federal Bureau of Investigation's behavioral sciences unit, studied serial killers and noted,"Murderers like this (Jeffrey Dahmer) very often start out by killing and torturing animals as kids."

Cruelty to animals is one of the three components of the Macdonald triad, indicators of violent antisocial behavior in children and adolescents. According to the studies used to form this model, cruelty to animals is a common (but not with every case) behavior in children and adolescents who grow up to become serial killers and other violent criminals.

It has also been found that children who are cruel to animals have often witnessed or been victims of abuse themselves. In two separate studies cited by the Humane Society of the United States roughly one-third of families suffering from domestic abuse indicated that at least one child had hurt or killed a pet.

TV & film making

Animal cruelty has long been an issue with the art form of filmmaking, with even some big-budget Hollywood films receiving criticism for allegedly harmful—and sometimes lethal—treatment of animals during production. One of the most infamous examples of animal cruelty in film was Michael Cimino's legendary flop *Heaven's Gate*, in which numerous animals were brutalized and even killed during production. Cimino allegedly killed chickens and bled horses from the neck to gather samples of their blood to smear on actors for *Heaven's Gate*, and also allegedly had a horse blown up with dynamite while shooting a battle sequence, the shot of which made it into the film. After the release of the film *Reds*, the star and director of the picture, Warren Beatty apologized for his Spanish film crew's use of tripwires on horses while filming a battle scene, when Beatty wasn't present. Tripwires were used against horses when *Rambo III* and *The Thirteenth Warrior* were being filmed. An ox was sliced nearly in half during production of *Apocalypse Now*, while a donkey was bled to death for dramatic effect for the film *Manderlay*, in a scene later cut from the film.

Cruelty in film exists in movies outside the United States. There is a case of cruelty to animals in the South Korean film *The Isle*, according to its director Kim Ki-Duk. In the film, a real frog is skinned alive while fish are mutilated. Several animals were killed for the camera in the controversial Italian film *Cannibal Holocaust*. The images in the film include the slow and graphic beheading and ripping apart of a turtle, a monkey being beheaded and its brains being consumed by natives and a spider being chopped apart. In fact, *Cannibal Holocaust* was only one film in a collective of similarly themed movies (cannibal films) that featured unstaged animal cruelty. Their influences were rooted in the films of Mondo filmmakers, which sometimes contained similar content. In several countries, such as the UK, *Cannibal Holocaust* was only allowed for release with most of the animal cruelty edited out.

More recently, the video sharing site YouTube has been criticized for hosting thousands of videos of real life animal cruelty, especially the feeding of one animal to another for the purposes of entertainment and spectacle. Although some of these videos have been flagged as inappropriate by users, YouTube has generally declined to remove them, unlike videos which include copyright infringement.

The Screen Actors Guild (SAG) has contracted with the American Humane Association (AHA) for monitoring of animal use during filming or while on the set. Compliance with this arrangement is voluntary and only applies to films made in the United States. Films monitored by the American Humane Association may bear one of their end-credit messages. Many productions, including those made in the US, do not advise AHA or SAG of animal use in films, so there is no oversight.

Simulations of animal cruelty exist on television, too. On the September 23, 1999 edition of WWE Smackdown!, a plot line had professional wrestler Big Boss Man trick fellow wrestler Al Snow into appearing to eat his pet chihuahua Pepper.

Circuses

The use of animals in the circus has been controversial since animal welfare groups have documented instances of animal cruelty during the training of performing animals. The Humane Society of the United States has documented multiple cases of abuse and neglect, and cite several reasons for opposing the use of animals in circuses, including confining enclosures, lack of regular veterinary care, abusive training methods and lack of oversight by regulating bodies. Animal trainers have argued that some criticism is not based in fact, including beliefs that animals are 'hurt' by being shouted at, that caging is cruel and common, and the harm caused by the use of whips, chains or training implements.

In 2009, Bolivia passed legislation banning the use of any animals, wild or domestic, in circuses. The law states that circuses "constitute an act of cruelty." Circus operators had one year from the bill's passage on July 1, 2009 to comply.

In 2010, Lebanese animal rights groups became enraged when it was learned that wild performing animals belonging to the Monte Carlo Circus were transported from Egypt to Lebanon without being provided with food and water.

Restrictions

Following the campaign, new regulations were enacted that prohibit the use of animals in circuses in Israel. Finland and Singapore have restricted the use of animals in entertainment. The UK and Scottish Parliaments have committed to ban certain wild animals in travelling circuses and approximately 200 local authorities in the UK have banned all animal acts on council land. Animal acts are still very popular throughout much of Europe, the Americas and Asia. In the United States animal welfare standards are overseen by the United States Department of Agriculture under provisions of the Animal Welfare Act. Efforts to ban circus animals in cities like Denver, Colorado have been rejected by voters. Some circuses now present animal-free acts.

Crush films

Animal snuff films, known as crush films can be found on the Internet. These films depict instances of animal cruelty, and/or pornographic acts with animals, usually involving the death of an animal, including insects, mice, rats, guinea pigs, hamsters, monkeys, birds, cats, and dogs. In 1999, the U.S. government banned the depiction of animal cruelty, however the law was overturned by the 3rd U.S. Circuit Court of Appeals which ruled that the category "depiction of animal cruelty" contained in the law was not an exception to First Amendment protections. In an 8–1 decision handed down in April 2010, the U.S. Supreme Court agreed with the lower court's ruling, but on the grounds that the law was unconstitutionally broad. The case itself did not involve crush films, but rather, a video that in part depicted dogfighting.

Warfare

A horse with a gas mask during World War I

Military animals are creatures that have been employed by humankind for use in warfare. They are a specific application of working animals. Examples include horses, dogs and dolphins. Only recently has the involvement of animals in war been questioned, and practices such as using animals for fighting, as living bombs (as in the use of exploding donkeys) or for military testing purposes (such as during the Bikini atomic experiments) may now be criticised for being cruel. Princess Anne, the Princess Royal, the patron of the British Animals in War Memorial, stated that animals adapt to what humans want them to do, but that they will not do things that they don't want to, despite training. Animal participation in human conflict was commemorated in the United Kingdom in 2004 with the erection of the Animals in War Memorial in Hyde Park, London.

In 2008 a video of a US Marine throwing a puppy over a cliff during the Iraq conflict was popularised as an internet phenomenon and attracted widespread criticism of the soldier's actions for being an act of cruelty.

Chapter 3

Bile Bear

A bile bear in a "crush cage" on Huizhou Farm, China.

Bile bear or **battery bear** refers to Asiatic black bears kept in captivity in China and Vietnam to harvest bile, a digestive juice produced by the liver and stored in the gall bladder. When extracted, the bile is a valuable commodity for sale as an ingredient in traditional Chinese medicine (TCM). The bears are also known as *moon bears* because of the cream-colored crescent moon shape on their chest. The Asiatic black bear, the one

most commonly used on bear farms, is listed as vulnerable on the World Conservation Union's (IUCN's) Red List of Threatened Animals.

Living conditions

Bears are commonly kept in extraction cages

To facilitate the bile milking process, the bears are commonly kept in extraction cages, also known as crush cages, that measure around 2.6 feet x 4.4 feet x 6.5 feet (79 cm x 130 cm x 200 cm) for an animal that weighs between 110 to 260 pounds (50 to 120 kg). While this allows for easier access to the abdomen, it also prevents the bears from being able to stand upright, or in some cases move at all. Living for 10–12 years under such circumstances results in severe mental stress and muscle atrophy. In two model Chinese bile farms, the Humane Society of the United States (HSUS) reports that the bears are moved to the crush cages for milking, but the rest of the time live in a cage large enough to stand and turn around.

The World Society for the Protection of Animals sent researchers to 11 bile farms. They reported seeing bears moaning, banging their heads against their cages, and chewing their own paws. The mortality rate is high. Bile bears suffer from a variety of physical problems which include loss of hair, malnutrition, stunted growth, muscle mass loss, and often have their teeth and claws extracted. When the bears stop producing bile after a few years, they are usually killed for their meat, fur, paws and gall bladders. Bear paws are considered a delicacy, and have been seen priced at $250.

Extraction methods

According to the HSUS, the bile is usually extracted twice a day through an implanted tube, producing 10–20 mL of bile each time; the process is believed to be painful, as the bears can be seen moaning and chewing their paws while being milked. Other methods include pushing a hollow steel stick through the bear's abdomen. The use of metal catheters has been banned, though HSUS writes that bile bears are still seen with catheters in them.

The "free drip" method is regarded as more humane. A permanent hole or fistula is made in the bear's abdomen and gall bladder, from which bile drips out freely. The wound is vulnerable to infection and bile can bleed back into the abdomen, causing a high mortality rate. Sometimes the hole is kept open with a perspex catheter, which HSUS writes causes severe pain.

Statistics

Population figures for the Moon bears in China are causing concern, with estimates ranging from 50,000 to as low as 16,000. Some estimates put the total Asia-wide population as low as 25,000.

There are estimated to be 4,000 bile bears in Vietnam, where their bile can sell for 100,000 dong (~ US$6.25) a millilitre (with 37,500 dong a week regarded as the poverty line for an urban resident), and around 9,000 bile bears in China. The World Society for the Protection of Animals (WSPA) conducted a study in 1999 and 2000, and estimates that there are 247 bile-bear farms in China, holding 7,002 bears, though the Chinese government has called the figures "pure speculation."

In July 2000, Animals Asia Foundation, a Hong-Kong based charity, signed an agreement with the Chinese government to remove 500 endangered Moon Bears from the worst bile farms in Sichuan province, and work towards ending the practice. Today, the China Bear Rescue has placed 219 previously farmed Moon Bears at a Sanctuary in Chengdu, and is helping to advance the concept of animal welfare in China.

The Chinese consider bear farms a way to reduce the demand on the wild bear population. Officially 7,600 captive bears are farmed in China. According to Chinese officials, 10,000 wild bears would need to be killed each year to produce as much bile. The government sees farming as a reasonable answer to the loss of wild bears from poaching, and at the same time are indifferent to the cruelty issues that concern Western animal rights activists. However, the government's agreement to allow the rescue of 500 bears may represent a softening of this stance.

Bile trade

Bear bile products come in forms, including pill (top) and liquid (bottom) forms.

The monetary value of the bile comes from the traditional prescription of bear bile by doctors practising traditional Chinese medicine. Bear bile contains ursodeoxycholic acid (UDCA), which is believed to reduce fever, protect the liver, improve eyesight, break down gallstones, and act as an anti-inflammatory. The high demand for the bile has led to the introduction of intensive farming of bears. Because only minute amounts are used in traditional Chinese medicine, a total of 500 kg of bear bile is used by practitioners every year, but according to WSPA more than 7,000 kg is being produced, with the surplus is being used in non-essential products such as wines, eyedrops, and general tonics.

In January 2006, the Chinese State Council Information Office held a press conference in Beijing, during which the government said that it was enforcing a "Technical Code of Practice for Raising Black Bears," which "requires hygienic, painless practice for gall extraction and make strict regulations on the techniques and conditions for nursing, exercise and propagation." However, a 2007 Veterinary Report published by the Animals Asia Foundation stated that the Technical Code was not being enforced and that many bears were still spending their entire lives in small extraction cages without free access to food or water. AAF also noted that the free-dripping technique promoted in the Technical Code was unsanitary as the fistula created to access the gall bladder allowed for an open portal through which bacteria could infiltrate the abdomen. The AAF Vet Report also stated that surgeries to create free-dripping fistulas caused bears great suffering as they were performed without appropriate antibiotics or pain management and the bears were repeatedly exposed to this process as the fistulas often healed over. The free-dripping method still requires the bears to be prodded with a metal rod when the wound heals over and, under veterinary examination, some bears with free-dripping fistulas were actually found to have clear perspex catheters permanently implanted into their gall bladders. In addition to the suffering caused by infection and pain at the incision site, 28% of fistulated bears also experience abdominal hernias and more than a third eventually succumb to liver cancer, believed to be associated with the bile-extraction process.

Pharmacology

The active therapeutic substance in bear bile—and in the bile of all mammals—is ursodeoxycholic acid (UDCA). Before the manufacture of UDCA by pharmaceutical companies, bear bile was prescribed by practitioners of traditional Chinese medicine because it contained a higher percentage of UDCA than the bile of other mammals. However, modern chemistry has made this fact irrelevant. Today, pharmaceutical-grade UDCA is now collected from slaughterhouses, then purified and packaged under trade names such as Ursosan, Ursofalk, Actigall, and UrsoForte. These products are approved by the Federal Drug Administration (FDA). Chinese doctors have also endorsed several herbal substitutes, which provide a cheap, effective and readily available alternative.

Substances in mammalian bile other than UDCA, such as cholesterol, have never been demonstrated to have any healing effect in humans. Despite this observation and the availability of affordable pharmaceutical-grade UDCA, some practitioners of traditional Chinese medicine continue to prescribe whole bear bile for their patients and reject any

sort of modern substitute. These individuals drive the market demand for bear bile and pressure the Chinese government to continue the practice of bear farming.

Rescue Centers

In China, there are two moon bear rescue centers, one in the Sichuan province and one in the Yunnan province. The rescue centers have already rescued approximately 300 bile bears. The bears are kept at the rescue centers where they are allowed to run around and play. The rescue centers not only rescue bile bears but also rescue some brown bears, dogs, cats, etc. The rescue center was opened by Jill Robinson from England.

Alternatives

Bear bile is not always needed to make traditional Chinese medicine or other products. Many herbs, such as coptis or rhubarb, can be used as alternatives for bear bile.

Chapter 4

Docking (Dog)

Boxers with natural and cropped ears and docked tails

Docking is the removal of portions of an animal's tail or ears. While docking and **bobbing** are more commonly used to refer to removal of the tail, the term **cropping** is used in reference to the ears. Tail docking occurs in one of two ways. The first involves constricting the blood supply to the tail with a rubber ligature for a few days until the tail falls off. The second involves the severance of the tail with surgical scissors or a scalpel. The tail is amputated at the dock.

At least 17 dog breeds, including the Corgi, have naturally occurring bob tail lines. These appear similar to docked dogs but are a distinct naturally occurring genotype. The issue of docking is not relevant to these natural bob tails (also known as NBTs).

History of docking and cropping

Historically, tail docking was thought to prevent rabies, strengthen the back, increase the animal's speed, and prevent injuries when ratting, fighting, and baiting. In early Georgian times in the United Kingdom a tax was levied upon working dogs with tails and so many types of dogs were docked to avoid this tax. The tax was repealed in 1796 but that did not stop the practice from persisting.

Tail docking is done in modern times either for prophylactic, therapeutic, or cosmetic purposes. For dogs that worked in the field, such as some hunting dogs and herding dogs, tails could collect burrs and foxtails, causing pain and infection and, due to the tail's wagging, may be subject to abrasion or other injury while moving through dense brush or thickets. Tails with long fur could collect feces and become a cleanliness problem.

In dogs used for guarding property (such as Doberman Pinschers or Boxers), docked ears are thought to make the breed appear more ferocious. Proponents say that the procedures are not significantly painful and can prevent future health problems that cause more pain and risk of infection than the docking. Proponents also believe that docking done almost immediately after birth ensures that the wound heals easily and properly, saying that whatever pain the procedure causes is a worthwhile trade-off.

Docking to puppies fewer than 10 to 14 days old is routinely carried out by both breeders and veterinarians without anesthesia. Opponents of these procedures state that most tail dockings are done for aesthetic reasons rather than health concerns and are unnecessarily painful for the dog. They point out that even non-working show or pet dogs are routinely docked. They say that in breeds whose tails have been traditionally and routinely docked over centuries, such as Australian Shepherds, little attention is paid to selectively breeding for strong and healthy tails. As a result, tail defects that docking proponents claim makes docking necessary in the first place are perpetuated in the breeds. They point to the many breeds of working dogs with long tails that are not traditionally docked, including English Pointers, Setters, Herding dogs, and Foxhounds.

Robert Wansborough argued in a 1996 paper that docking tails puts dogs at a disadvantage in several ways. First, dogs use their tails to communicate with other dogs (and with people); a dog without a tail might be significantly handicapped in conveying

fear, caution, aggression, playfulness, and so on. Certain breeds use their tails as rudders when swimming, and possibly for balance when running, so active dogs with docked tails might be at a disadvantage compared to their tailed peers. In 2007, Stephen Leaver, a graduate student at the University of Victoria, published a paper on tail docking which found that tail length was important in the transmission of social cues. The study found that dogs with shorter tails (docked tails) would be approached with caution, as if the approaching dog was unsure of the emotional state of the docked dog. The study goes on to suggest that dogs with docked tails may grow up to be more aggressive. The reasoning postulated by Tom Reimchen, UVic Biologist and supervisor of the study, was that dogs who grew up without being able to efficiently transmit social cues would grow up to be more anti-social and thus more aggressive.

Wansborough also investigates seven years of records from an urban veterinary practice to demonstrate that undocked tails result in less harm than docked tails.

Critics point out that kennel clubs with breed standards that do not make allowance for uncropped or undocked dogs put pressure on owners and breeders to continue the practice. Although the American Kennel Club (AKC) says that it has no rules that require docking or that make undocked animals ineligible for the show ring, standards for many breeds puts undocked animals at a disadvantage for the conformation show ring. The American breed standard for boxers, for example, recommends that an undocked tail be "severely penalized." The AKC position is that ear cropping and tail docking are "acceptable practices integral to defining and preserving breed character and/or enhancing good health."

Legal status

A Doberman Pinscher puppy with its ears taped to train them into the desired shape and carriage after cropping

Today, many countries ban cropping and docking because they consider the practices cruel or mutilation. In Europe, the cropping of ears is prohibited in all countries that have ratified the European Convention for the Protection of Pet Animals. Some countries that ratified the convention made exceptions for tail docking.

United Kingdom

Show dogs are no longer docked in the United Kingdom. A dog docked before 28 March 2007 in Wales and 6 April 2007 in England may continue to be shown at all shows in England, Wales, Scotland and Northern Ireland throughout its life. A dog docked on, or after, the above dates, regardless of where it was docked, may not be shown at shows in England and Wales where the public is charged a fee for admission. Where a working dog has been docked in England and Wales under the respective regulations, however, it may be shown where the public is charged a fee, so long as it is shown "only to demonstrate its working ability". It will thus be necessary to show working dogs in such a way as **only** to demonstrate their working ability and not conformity to a standard. A dog

legally docked in England, Wales, Northern Ireland, or abroad may be shown at any show in Scotland or Northern Ireland.

In England and Wales, ear cropping is illegal, and no dog with cropped ears can take part in any Kennel Club event (including agility and other nonconformation events). Tail docking is also illegal, except for a few working breeds; this exemption applies only when carried out by a registered veterinary surgeon.

The Royal College of Veterinary Surgeons (RCVS), the regulatory body for veterinary surgeons in the United Kingdom, has said that they consider tail docking to be "an unjustified mutilation and unethical unless done for therapeutic or acceptable prophylactic reasons". In 1995 a veterinary surgeon was brought before the RCVS disciplinary council for "disgraceful professional conduct" for carrying out cosmetic docking. The surgeon claimed that the docking was performed to prevent future injuries, and the case was dismissed for lack of evidence otherwise. Although cosmetic docking is still considered unacceptable by the RCVS, no further disciplinary action has been taken against vets performing docking.

In March 2006 an amendment was made to the Animal Welfare Bill that makes the docking of dogs' tails illegal, except for working dogs such as those used by the police force, the military, rescue services, pest control, and those used in connection with lawful animal shooting. Three options were presented to Parliament with Parliament opting for the second:

- An outright ban on docking dogs' tails (opposed by a majority of 278 to 267)
- A ban on docking dogs' tails with an exception for working dogs (supported by a majority of 476 to 63)
- Retention of the status quo.

Those found guilty of unlawful docking would face a fine of up to £20,000, up to 51 weeks of imprisonment or both.

In Northern Ireland legislation regarding docking has not yet been drawn up, so it is still legal.

In Scotland docking of any breed is illegal. The Animal Health and Welfare (Scotland) Act 2006 contains provisions prohibiting the mutilation of domesticated animals.

Legal status of dog tail docking and ear cropping by country

Country	Status	Ban/restriction date (if applicable)
Afghanistan	Unrestricted	
Argentina	Unrestricted	
Australia	Banned in some states and territories. Legal in	June 2004

	Western Australia, although restricted to Veterinarians.	
Austria	Banned	1 January 2005
Belgium	Banned	1 January 2006
Bolivia	Unrestricted	
Brazil	Banned for cosmetic purposes.	
Canada	Banned in New Brunswick and Nova Scotia by their Veterinary Medical Associations. This includes tail docking in dogs, horses, and cows.	
Chile	Unrestricted	
Croatia	Banned	
Cyprus	Banned	1991
Czech Republic	Banned	
Denmark	Banned, with exceptions for five gun dog breeds	1 June 1996
Egypt	Unrestricted	
England	Restricted - can only be done by vet on a number of working dog breeds.	2006
Estonia	Banned	2001
Finland	Banned. Exception on tail docking, although banned on dog shows.	1992
France	Banned	4 August 2003
Germany	Banned, with exceptions for working gun dogs.	1 May 1992
Greece	Banned	1991
Hungary	Banned	
Iceland	Banned	2001
India	Unrestricted	
Indonesia	Unrestricted	
Ireland	Banned	
Israel	Banned for cosmetic purposes.	2000
Italy	Banned in Rome and Turin	
Kuwait	Unrestricted	
Latvia	Banned	
Lebanon	Unrestricted	
Lithuania	Banned	
Luxembourg	Banned	1991
Malaysia	Unrestricted	
Mauritius	Unrestricted	

Mexico	Unrestricted	
Nepal	Unrestricted	
Netherlands	Banned	1 September 2001
New Zealand	Cropping ears is banned, docking tails is unrestricted.	
Northern Ireland	Unrestricted tail docking, Ear Cropping Illegal. Welfare of Animals Bill is currently progressing through the Northern Ireland Assembly and proposes an outright ban on tail docking.	
Norway	Banned	1987
Peru	Unrestricted	
Philippines	Unrestricted	
Portugal	Unrestricted	
Poland	Banned	1997
Russia	Restricted	
Scotland	Banned	2006
Slovakia	Banned	1 January 2003
Slovenia	Banned.	April 2007
South Africa	Banned.	June 2007
Spain	Banned in some autonomies	
Sri Lanka	Unrestricted	
Sweden	Banned. Apparent increase in tail injuries reported among working dogs after ban.	1989
Switzerland	Banned	1 July 1981 for the ears and 1988 for the tail
Taiwan	Unrestricted	
United States	Unrestricted (some states, including New York, and Vermont have considered bills to make the practice illegal)	
Virgin Islands	Banned	2005
Wales	Restricted - can only be done by vet on a number of working dog breeds, and only when a sheep is present	2006

Chapter 5

Fox Hunting

Master of foxhounds leads the field from Powderham Castle in Devon, England, with the hounds in front.

Fox hunting is an activity involving the tracking, chase, and sometimes killing of a fox, traditionally a red fox, by trained foxhounds or other scent hounds, and a group of followers led by a *master of foxhounds,* who follow the hounds on foot or on horseback.

Fox hunting originated in its current form in the United Kingdom in the 16th century, but is practised all over the world, including in Australia, Canada, France, Ireland, Italy, Russia, and the United States. In Australia, the term also refers to the hunting of foxes with firearms similar to spotlighting or deer hunting.

The sport is controversial, particularly in the UK, where bans were introduced for Scotland in 2002, then for England and Wales in November 2004. Proponents see it as an important part of rural culture, and also, as useful for reasons of conservation and pest control, while opponents argue that it is cruel and unnecessary.

History

The use of scenthounds to track prey dates back to Assyrian, Babylonian, and ancient Egyptian times, and was known as venery.

Charles Brand, a Hunt Master who lived from 1855 to 1912

Europe

Many Greek- and Roman- influenced countries have long traditions of hunting with hounds. Hunting with Agassaei hounds was popular in Celtic Britain, even before the Romans arrived, introducing the Castorian and Fulpine hound breeds which they used to hunt. Norman hunting traditions were brought to Britain when William the Conqueror arrived, along with the Gascon and Talbot hounds.

Foxes were referred to as *beasts of the chase* by medieval times, along with the red deer (hart & hind), martens, and roes, but the earliest known attempt to hunt a fox with hounds was in Norfolk, England, in 1534, where farmers began chasing foxes down with their

dogs for the purpose of pest control . The first use of packs specifically trained to hunt foxes was in the late 1600s, with the oldest fox hunt being, probably, the Bilsdale in Yorkshire. By the end of the seventeenth century, deer hunting was in decline. The Inclosure Acts brought fences to separate open land into fields, deer forests were being cut down, and arable land was increasing. With the onset of the Industrial Revolution, people began to move out of the country and into towns and cities to find work. Roads, rail, and canals split hunting countries, but also made hunting accessible to more people. Shotguns were improved during the nineteenth century and the shooting of gamebirds became more popular. Fox hunting developed further in the eighteenth century when Hugo Meynell developed breeds of hound and horse to address the new geography of rural England.

To protect pheasants for shooters, gamekeepers culled foxes almost to extinction in many areas, which caused the huntsmen to improve their coverts to preserve their quarry. The Game Laws were relaxed in 1831, which meant that anyone could obtain a permit to take rabbits, hares, and game birds.

In Germany, hunting with hounds was first banned on the initiative of Hermann Göring on July 3, 1934. In 1939, the ban was extended to cover Austria after Germany's annexation of the country. Bernd Ergert, the director of Germany's hunting museum in Munich, said of the ban, "The aristocrats were understandably furious, but they could do nothing about the ban given the totalitarian nature of the regime."

United States

The Fox Hunt, Alexandre-François Desportes

According to the Masters of Foxhounds Association of America, Englishman Robert Brooke was the first man to import hunting hounds to America, bringing his pack to Maryland in 1650 when he imported his horses and a pack of foxhounds. Also around this time, numbers of European red foxes were introduced into the Eastern seaboard of North America for hunting. The first organised hunt for the benefit of a group (rather than a single patron) was started by Thomas, sixth Lord Fairfax in 1747. In the United States, George Washington and Thomas Jefferson both kept packs of fox hounds before and after the American Revolutionary War.

Australia

In Australia, the European red fox was introduced solely for the purpose of fox hunting in 1855. Native animal populations have been very badly affected, with the extinction of at

least 10 species attributed to the spread of foxes. Fox hunting continues in Australia, with thirteen clubs with over 1000 members, still hunting with horses and hounds, in the state of Victoria. Fox hunting with hounds results in around 650 foxes being killed annually in Victoria, compared with over 90,000 shot over a similar period in response to a State government bounty.

Current status

United Kingdom

The controversy around fox hunting led to the passing of the Hunting Act 2004 in November of that year, after a free vote in the House of Commons, which made hunting with dogs unlawful in England and Wales from February 18, 2005. An amendment which allowed licensed hunting under stricter conditions, advocated by the then Prime Minister Tony Blair and some members of the government's independent inquiry on fox hunting (including its chairman Lord Burns), was voted down. The passing of the Hunting Act was also notable in that it was implemented through the use of the Parliament Acts 1911 and 1949 after the House of Lords refused to pass the legislation, despite the Commons passing it by a majority of 356 to 166. Scotland, which has its own Parliament, banned fox hunting in 2002, over two years before the ban in England and Wales. Fox hunting remains legal in Northern Ireland.

After the ban on fox hunting, hunts say that they follow artificially laid trails, although the League Against Cruel Sports has alleged widespread law breaking. Supporters of fox hunting claim that the number of foxes killed by dogs has increased since the ban, that hunts have reported an increase in membership and that around 320,000 people (their highest recorded number) turned up to fox hunts on Boxing Day 2006. The Master of Foxhounds association lists 184 active hunts as of November 2008.

United States

In America, fox hunting is also called 'fox chasing,' as the purpose is not to actually kill the animal but to enjoy the thrill of the chase. A hunt may go without a kill for several years, despite chasing two or more foxes in a single day's hunting. As a rule, foxes are not pursued once they have 'gone to ground.' American fox hunters undertake stewardship of the land, and endeavour to maintain fox populations and habitats as much as possible.

In 2007, the Masters of Foxhounds Association of North America listed 171 registered packs in the U.S. and Canada. This number does not include the nonregistered (also known as 'farmer' or 'outlaw') packs. In some arid parts of the Western United States, where foxes in general are more difficult to locate, hunts track coyotes and, in some cases, bobcats.

Other countries

Fox hunting with hounds is practised in countries including Australia, Canada, France, India, Ireland, Italy, and Russia whereas the Burns Inquiry reported that fox hunting was "not practised or is largely banned" in Spain, Belgium, Germany, Sweden, Denmark, Finland and Norway.

Animals

Quarry animals

Red fox

The red fox is the main prey of European and American fox hunts.

The *red fox* (*Vulpes vulpes*) is the normal prey animal of a fox hunt in the U.S. and Europe. A small omnivorous predator, the fox lives in underground burrows called earths, and is predominantly active around twilight (making it a crepuscular animal). Adult foxes tend to range around an area of between 5 and 15 square kilometers (2–6 square miles) in good terrain, although in poor terrain, their range can be as much as 20 square kilometers (7.7 sq mi). The red fox can run at up to 48 km/h (30 mph). The fox is also variously known as a *Tod* (old English word for fox), *Reynard* (the name of an anthropomorphic character in European literature from the twelfth century), or *Charlie* (named for the Whig politician Charles James Fox). American red foxes tend to be larger

than European forms, but according to hunter's accounts, they have lesser cunning, vigour and endurance in the chase compared to the European foxes.

Coyote, gray fox, and other quarry

Hunting Jackals by Samuel Howitt, illustrating a group of golden jackals rushing to the defence of a fallen pack-mate

Other species than the red fox may be the quarry in a Hunt. The choice of quarry depends on the region and numbers available. The coyote (*Canis latrans*) is a significant quarry for many Hunts in North America, particularly in the west and southwest, where there are large open spaces. The coyote is an indigenous predator that did not range east of the Mississippi River until the latter half of the 20th century. The coyote is faster than a fox, running at 65 km/h (40 mph) and also wider ranging, with a territory of up to 283 square kilometers (109 sq mi), so a much larger hunt territory is required to chase it. However, coyotes tend to be less challenging intellectually, as they offer a straight line hunt instead of the convoluted fox line. Coyotes can be challenging opponents for the dogs in physical confrontations, despite the size advantage of a large dog. Coyotes have larger canine teeth and are generally more practised in hostile encounters.

The gray fox (*Urocyon cinereoargenteus*), a distant relative of the European red fox, is also hunted in North America. It is an adept climber of trees, making it harder to hunt with hounds. The smell of the grey fox is not as strong as that of the red, therefore more time is needed for the hounds to take the scent. Unlike the red fox which, during the

chase, will run far ahead from the pack, the grey fox will speed toward heavy brush, thus making it more difficult to pursue. Also unlike the red fox, which occurs more prominently in the northern United States, the more southern grey fox is rarely hunted on horseback, due to its densely covered habitat preferences. Generally, two hours are required to fully tire out and capture a grey fox with hounds.

Hunts in the southern United States sometimes pursue the bobcat (*Lynx rufus*). In countries such as India, and in other areas formerly under British influence, such as Iraq, the golden jackal (*Canis aureus*) is often hunted. During the British Raj, British sportsmen in India would hunt jackals on horseback with hounds as a substitute for the fox hunting of their native England. Unlike foxes, golden jackals were documented to be ferociously protective of their pack mates, and could seriously injure dogs. Jackals were not hunted often in this manner, as they were slower than foxes and could scarcely outrun greyhounds after 200 yards.

Animals of the hunt

An English foxhound

Hounds and other dogs

Fox hunting is usually undertaken with a pack of scent hounds, and, in most cases, these are specially bred *foxhounds*. These dogs are trained to pursue the fox based on its scent. The two main types of foxhound are the English Foxhound and the American Foxhound. It is possible to use a sight hound such as a Greyhound or lurcher to pursue foxes, though

this practice is not common in organised hunting, and these dogs are more often used for coursing animals such as hares. There is also one pack of beagles in Virginia that hunt fox. They are unique in that they are the only hunting beagle pack in the U.S. to be followed on horseback. English Foxhounds are also used for hunting mink.

Hunts may also use terriers to flush or kill foxes that are hiding underground, as they are small enough to pursue the fox through narrow earth passages.

Horses

A mixed field of horses at a hunt, including children on ponies

The horses, called "field hunters" or *hunters,* ridden by followers of the hunt, are a prominent feature of many hunts, although others are conducted on foot (and those hunts with a field of horseback-mounted riders may also have foot followers). Horses on hunts can range from specially bred and trained field hunters to casual hunt attendees riding a wide variety of horse and pony types. Draft and Thoroughbred crosses are commonly used as hunters, although purebred Thoroughbreds and horses of many different breeds are also used. Some hunts with unique territories favor certain traits in field hunters, for example, when hunting coyote in the western U.S., a faster horse with more stamina is required to keep up, as coyotes are faster than foxes and inhabit larger territories. Hunters must be well-mannered, have the athletic ability to clear large obstacles such as wide ditches, tall fences, and rock walls, and have the stamina to keep up with the hounds.

Dependent on terrain, and to accommodate different levels of ability, hunts generally have alternative routes that do not involve jumping. The hunt may be divided into two groups, with one group, the *First Field,* that takes a more direct but demanding route that involves jumps over obstacles while another group, the *Second Field* (also called *Hilltoppers* or *Gaters*), takes longer but less challenging routes that utilize gates or other types of access on the flat.

Birds of prey

In the United Kingdom, since the introduction of the hunting ban, a number of hunts have employed falconers to bring birds of prey to the hunt, due to the exemption in the Hunting Act for falconry. The legality of this will be tested by a private prosecution being brought by the League Against Cruel Sports.

Procedure

The Bedale Hunt, Yorkshire, drawing a wood in February 2005

Fox hunts are the setting for many social rituals, but the hunting itself begins when hounds are "cast" (put into) rough or brushy areas called *coverts*, where foxes often lay up during daylight hours or when they hear dogs moving toward them. If the pack manages to pick up the scent of a fox, they will track it for as long as they are able. Scenting can be affected by temperature, humidity, and other factors. The hounds pursue the trail of the fox and the riders follow, by the most direct route possible. Since this may involve very athletic skill on the part of horse and rider alike, fox hunting is the origin of traditional equestrian sports including steeplechase and point to point racing. The hunt continues until either the fox evades the hounds, *goes to ground* (that is takes refuge in an underground burrow or den) or is overtaken and usually killed by the hounds. In the case of Scottish hill packs or the gun packs of Wales and upland areas of England, the fox is flushed to guns. Hunts in the Cumbrian fells and other upland areas are followed by supporters on foot rather than on horseback. In the UK, where the fox goes to ground , terriers may be entered into the earth to locate the fox so that it can be dug down to and killed.

Social rituals are important to hunts, although many have fallen into disuse. One of the most notable was the act of *blooding.* This is a very old ceremony in which the master or huntsman would smear the blood of the fox or coyote onto the cheeks or forehead of a newly initiated hunt follower, often a young child. Another practice of some hunts was to cut off the tail ('brush'), the feet ('pads') and the head ('mask') as trophies, with the carcass

then thrown to the dogs. Both of these practices were widely abandoned during the nineteenth century, although isolated cases may still have occurred to the modern day.

Autumn or cub hunting

In the autumn of each year (August–October in the UK), hunts take the young hounds out *cub hunting* or *autumn hunting* in order to cull weaker young foxes (which are full size by autumn season as they are born in spring, albeit not yet sexually mature until they are 10 months old and still living in their family group) and teach the young fox hounds to restrict their hunting to foxes. In Britain, the activity consists of hunt supporters surrounding a covert, with riders and foot followers to drive back foxes attempting to escape, and then 'drawing' the covert with the puppies and some more experienced hounds, allowing them to find, attack and kill the young foxes within the surrounded wood. A young hound is considered to be 'entered' into the pack once he or she has successfully joined in a hunt in this fashion. Only rarely, in about 1 in 50 cases, foxhounds do not show suitable aptitude, and must be removed from the pack.

In the U.S., some cubs are chased and allowed to escape to teach them better skills of evasion so that they may be tracked (preferably without being killed) again another day. Many foxes learn to evade the hounds by running up or down streams, running along the tops of fences, and other tactics to throw the hounds off the scent.

Main hunting season

A French pack: moving off

Once the season proper starts (usually from early November in the northern hemisphere, or May in the southern hemisphere), the idea is to drive the fox from the covert and chase it for long distances over open countryside. The northern hemisphere season continues through to April, though a few hunts continue into early May. Fox cubs are born between January and May, dependent on their geographical range, which means that pregnant and nursing vixens may be hunted.

Drag, trail and bloodhound hunting

Drag hunting, an equestrian sport which involves dragging an object over the ground to lay a scent for the hounds to follow, can also be popular, either instead of, or in addition to, live quarry hunting. Drag hunts are often considered to be faster than standard fox hunts, with followers not having to wait while the hounds pick up a trail, and often covering an area far larger than a traditional hunt, which may even necessitate a change of horses half way through. A non-equestrian variation, hound trailing, is practiced in the Lake District. Since the UK hunting ban, hunts claim to use a mixture of an odoriferous substance with an oil in order to improve the persistence of the scent trail, and then to lay the scent about 20 minutes in advance of the hunt. Bloodhounds are also used to hunt a human runner in the sport of *Hunting the Clean Boot*.

Shooting foxes

In Australia, fox hunting also involves hunting foxes with firearms, much the same as deer or rabbit, although Australia also has mounted hunts with hounds. Introduced red foxes are regarded as a serious problem for farmers in Australia, having been introduced by huntsmen in the nineteenth and twentieth century for sporting purposes; as such, their expedient removal is viewed by farmers as the priority, rather than the traditional fox hunt in the UK. Alongside methods such as trapping and poisoning, hunters usually work at night with a spotlight and a small to medium calibre rifle, known as "spotlighting", or "lamping" in the UK and Ireland.

People

Hunt staff and officials

Caricature of Mr Edgar Lubbock (1847-1907). "The Master of the Blankney". Published in Vanity Fair in 1906.

As a social ritual, participants in a fox hunt fill specific roles, the most prominent of which is the master, often more than one and then called masters or joint masters. These individuals typically take much of the financial responsibility for the overall management of the sporting activities of the hunt and the care and breeding of the hunt's fox hounds, as well as control and direction of its paid staff.

- **Master of fox hounds** (M.F.H.) or Joint Master of Fox Hounds operates the sporting activities of the hunt, maintains the kennels, works with (and sometimes is) the huntsman, and spends the money raised by the hunt club. (Often the master or joint masters are the largest of financial contributors to the hunt.) The master will have the final say over all matters in the field.
- **Honorary secretaries** are volunteers (usually one in America, two in the UK) who collect the **cap** (money) from guest riders.
- A **kennelman** looks after hounds in kennels, assuring that all tasks are completed when pack and staff return from hunting.
- **The huntsman**, often the same person as the kennelman, is responsible for directing the hounds in the course of the hunt. The Huntsman usually carries a horn to communicate to the hounds, followers and whippers in.
- **Whippers-in** (or "Whips") are assistants to the huntsman. Their main job is to keep the pack all together, especially to prevent the hounds from straying or 'riotting', which term refers to the hunting of animals other than the hunted fox. To help them to control the pack, they carry hunting whips (and in America they sometimes also carry .22 revolvers loaded with rat-shot or blanks.) The role of *whipper-in* in hunts has inspired parliamentary systems (including the Westminster System and the U.S. Congress) to use *whip* for a member who enforces party discipline and ensure the attendance of other members at important votes.
- **Terrier man**—Most hunts where the object is to kill the fox will employ a terrier man, whose job it is to control the terriers which may be used underground to corner or flush the fox. Often voluntary terrier men will follow the hunt as well. In the UK, they often ride quadbikes with their terriers in boxes on their bikes.

In addition to members of the hunt staff, a committee may run the *Hunt Supporters Club* to organise fundraising and social events and in America many hunts are incorporated and have parallel lines of leadership.

Britain, Ireland and America each have a *Masters of Foxhounds Association* (MFHA) which consists of current and past masters of foxhounds. This is the governing body for all foxhound packs and deals with disputes about boundaries between hunts.

Attire

A group of hunters in Denmark

Mounted hunt followers typically wear traditional hunting attire. A prominent feature of hunts operating during the formal hunt season (between late October and the end of March) is hunt members wearing 'colours'. This attire consists of the traditional scarlet coats worn by huntsmen, masters, former masters, whippers-in (regardless of sex), other hunt staff members and male members who have been invited to wear colours as a mark of honour. The coats are also known as *Pinks*. Ladies generally wear coloured collars on their black or navy coats. These help them stand out from the rest of the field. Various theories about the derivation of this term have been given, ranging from the colour of a weathered scarlet coat to the name of a purportedly famous tailor.

Some hunts, including most hare hunts, use green rather than red jackets. The colour of breeches (riding pants) vary from hunt to hunt and are generally of one colour, though two or three colours throughout the year may be permitted. Boots are generally English dress boots (no laces). For the men they are black with brown leather tops (called tan tops), and for the ladies, black with a patent black leather top of similar proportion to the men. Additionally, the number of buttons is significant. The Master of the hunt wears a scarlet coat with four brass buttons while the huntsman and other professional staff wear five. Amateur whippers-in also wear four buttons.

Another differentiation in dress between the amateur and professional staff is found in the ribbons at the back of the hunt cap. The professional staff wear their hat ribbons down, while amateur staff and members of the field wear their ribbons up.

Those members not entitled to wear colours, dress in a black hunt coat and unadorned black buttons for both men and ladies, generally with pale breeches. Boots are all English dress boots and have no other distinctive look. Some hunts also further restrict the wear of formal attire to weekends and holidays and use ratcatcher all other times.

Other members of the mounted field follow strict rules of clothing etiquette. For example, those under eighteen will wear tweed jackets, or ratcatcher, all season. Those over eighteen will wear ratcatcher during Autumn hunting from late August until the Opening Meet, normally around November 1. From the Opening Meet they will switch to formal hunting attire where entitled members will wear scarlet and the rest black or navy. The highest honour is to be awarded the hunt button by the Hunt Master. This means you can then wear scarlet if male, or the hunt collar if female (colour varies from hunt to hunt) and buttons with the hunt crest on them.

Controversy

The nature of fox hunting, including the killing of the quarry animal and its strong associations with tradition and social class and its practice for sport have made it a source of great controversy within the United Kingdom. In December 1999, the then Home Secretary, Jack Straw MP, announced the establishment of a Government inquiry (the *Burns Inquiry*) into hunting with dogs, to be chaired by the retired senior civil servant Lord Burns. The inquiry was to examine the practical aspects of different types of hunting with dogs and its impact, how any ban might be implemented and the consequences of any such ban.

Amongst its findings, the Burns Inquiry committee analysed opposition to hunting in the UK and reported that:

"There are those who have a moral objection to hunting and who are fundamentally opposed to the idea of people gaining pleasure from what they regard as the causing of unnecessary suffering. There are also those who perceive hunting as representing a divisive social class system. Others, as we note below, resent the hunt trespassing on their land, especially when they have been told they are not welcome. They worry about the welfare of the pets and animals and the difficulty of moving around the roads where they live on hunt days. Finally there are those who are concerned about damage to the countryside and other animals, particularly badgers and otters."

Anti-hunting activists who choose to take action in opposing fox hunting can do so through legal means such as campaigning for fox hunting legislation and monitoring hunts for cruelty or illegal activities. Main anti-hunting campaign organisations include the RSPCA and the League Against Cruel Sports. In 2001, the RSPCA took high court

action to prevent pro-hunt activists joining in large numbers to change the society's policy in opposing hunting.

Outside of campaigning, some activists choose to engage in direct intervention such as the sabotage of the hunt. Hunt sabotage is illegal in a majority of the United States, and tactics used (such as trespass and criminal damage) are illegal in other countries.

Fox hunting has been undertaken since the 1500s and in this time, strong traditions have built up around the activity, as have businesses and rural activities and hierarchies. For this reason, there are still large numbers of people who support fox hunting and this can be for a variety of reasons.

Pest control

Foxes are considered vermin by some farmers who fear they might lose valuable livestock, whilst others consider them an ally in controlling rabbits, voles and other rodents. A key reason for dislike of the fox by pastoral farmers is their tendency to commit acts of surplus killing toward animals such as chickens, yet eat only one of them. Some anti-hunt campaigners maintain that provided it is not disturbed, the fox will remove all of the chickens it kills and conceal them in a safer place.

Opponents of fox hunting claim that the activity is not necessary for fox control, arguing that the fox is not a pest species and that hunting does not and cannot make a real difference to fox populations. They compare the number of foxes killed in the hunt to the many more killed on the roads. They also argue that wildlife management goals of the hunt can be met more effectively by other methods such as *lamping* (dazzling a fox with a bright light, then shooting by a competent shooter using an appropriate weapon and load).

Fox hunts claim to provide and maintain a good habitat for foxes and other game, and, in the U.S., have been leaders in fostering conservation legislation and putting land into conservation easements. Anti hunting campaigners cite the widespread existence of artificial earths, and the historic practice by hunts of introducing foxes, as indicating that hunts do not believe foxes to be pests.

It is also argued that hunting with dogs has the advantage of weeding out old, sick and weak animals because the strongest and healthiest foxes are those most likely to escape. Therefore, unlike other methods of controlling the fox population, it is argued that hunting with dogs resembles natural selection. The counter-argument is given that hunting can not kill old foxes because foxes have a natural death rate of 65% per annum.

In Australia, where foxes have played a major role in the decline in the number of species of wild animals, the Government's Department of the Environment and Heritage concluded that "hunting does not seem to have had a significant or lasting impact on fox numbers." Instead, control of foxes relies heavily on shooting, poisoning and fencing.

There are now many humane methods to control foxes including fox proofing methods such as fences, electric or not, ultrasonic devices, and chemical products. These, in many cases, are far more practical than traditional methods, particularly for smaller areas of land.

Economics

As well as the economic defence of fox hunting that it is necessary to control the population of foxes, lest they cause economic cost to the farmers, it is also argued that fox hunting is a significant economic activity in its own right, providing recreation and jobs for those involved in the hunt and supporting it. The Burns Inquiry identified that between 6,000 and 8,000 full time jobs depend on hunting in the UK, of which about 700 result from direct hunt employment and 1,500 to 3,000 result from direct employment on hunting-related activities.

Since the ban in the UK, there has been no evidence of significant job losses, and hunts have continued to operate along limited lines, either trail hunting, or claiming to use exemptions in the legislation.

Animal welfare and animal rights

Many animal welfare groups, campaigners and activists believe that fox hunting is unfair and cruel to animals. They argue that the chase itself causes fear and distress and that fox is not always killed instantly as hunters claim, but is torn to pieces by hounds. Animal rights campaigners also object to fox hunting, on the grounds that animals should enjoy some basic rights (such as the right to freedom from exploitation and the right to life).

In the United States and Canada, pursuing the quarry for the sheer purpose of killing is strictly forbidden by the Masters of Foxhounds Association. According to article 2 of the organisation's code:

"The sport of fox hunting as it is practised in North America places emphasis on the chase and not the kill. It is inevitable, however, that hounds will at times catch their game. Death is instantaneous. A pack of hounds will account for their quarry by running it to ground, treeing it, or bringing it to bay in some fashion. The Masters of Foxhounds Association has laid down detailed rules to govern the behaviour of Masters of Foxhounds and their packs of hounds."

There are times when a fox or coyote that is injured or sick is caught by the pursuing hounds, but hunts say that the occurrence of an actual kill of this is exceptionally rare.

Supporters of hunting maintain that when a fox is hunted with dogs, it is either killed relatively quickly (instantly or in a matter of seconds) or escapes uninjured. Similarly, they say that the animal rarely endures hours of torment and pursuit by hounds, and research by Oxford University shows that the fox is normally killed after only an average of 17 minutes of chase. They further argue that, while hunting with dogs may cause

suffering, controlling fox numbers by other means is even more cruel. Depending on the skill of the shooter, the type of firearm used, the availability of good shooting positions and luck, shooting foxes can cause either an instant kill, or lengthy periods of agony for wounded animals which can die of the trauma within hours, or of secondary infection over a period of days or weeks. Research from wildlife hospitals, however, indicates that it is not uncommon for foxes with shot wounds to survive. Hunt supporters further say that it is a matter of humanity to kill foxes rather than allow them to suffer malnourishment and mange.

Other methods include the use of snares, trapping and poisoning, all of which also cause considerable distress to the animals concerned, and may affect other species. This was considered in the Burns Inquiry (paras 6.60–11), whose tentative conclusion was that lamping using rifles fitted with telescopic sights, if carried out properly and in appropriate circumstances, had fewer adverse welfare implications than hunting. The committee believed that lamping was not possible without vehicular access, and hence said that the welfare of foxes in upland areas could be affected adversely by a ban on hunting with hounds, unless dogs could be used to flush foxes from cover (as is permitted in the Hunting Act 2004).

Some opponents of hunting criticise the fact that the animal suffering in fox hunting takes place for sport, citing either that this makes such suffering unnecessary and therefore cruel, or else that killing or causing suffering for sport is immoral. The Court of Appeal, in considering the British Hunting Act determined that the legislative aim of the Hunting Act was "a composite one of preventing or reducing unnecessary suffering to wild mammals, overlaid by a moral viewpoint that causing suffering to animals for sport is unethical."

Anti-hunting campaigners also criticised UK hunts of which the Burns Inquiry estimated that fox hunts put down around 3,000 hounds, and the hare hunts who killed around 900 hounds per year, in each case after the dogs' working life had come to an end.

Civil liberties

It is argued by some hunt supporters that no law should curtail the right of a person to do as they wish, so long as it does not harm others. Philosopher Roger Scruton has said, "To criminalise this activity would be to introduce legislation as illiberal as the laws which once deprived Jews and Catholics of political rights, or the laws which outlawed homosexuality". In contrast, liberal philosopher, John Stuart Mill wrote, "The reasons for legal intervention in favour of children apply not less strongly to the case of those unfortunate slaves and victims of the most brutal parts of mankind—the lower animals." The UK's most senior court, the House of Lords has decided that a ban on hunting, in the form of the Hunting Act 2004, does not contravene the European Convention on Human Rights, as well as the European Court of Human Rights did.

Trespass

In its submission to the Burns Inquiry, the League Against Cruel Sports presented evidence of over 1,000 cases of trespass by hunts. These included trespass on railway lines and into private gardens. Trespass can occur as the hounds cannot recognise human-created boundaries they are not allowed to cross, and may therefore follow their quarry wherever it goes unless successfully called off. However, in the United Kingdom, trespass is a largely civil matter when performed accidentally.

Nonetheless, in the UK, the criminal offence of 'aggravated trespass' was introduced in 1994 specifically to address the problems caused to fox hunts and other field sports by hunt saboteurs. Hunt saboteurs trespass on private land to monitor or disrupt the hunt, as this is where the hunting activity takes place. For this reason, the hunt saboteur *tactics manual* presents detailed information on legal issues affecting this activity, especially the Criminal Justice Act. Some hunt monitors also choose to trespass whilst they observe the hunts in progress.

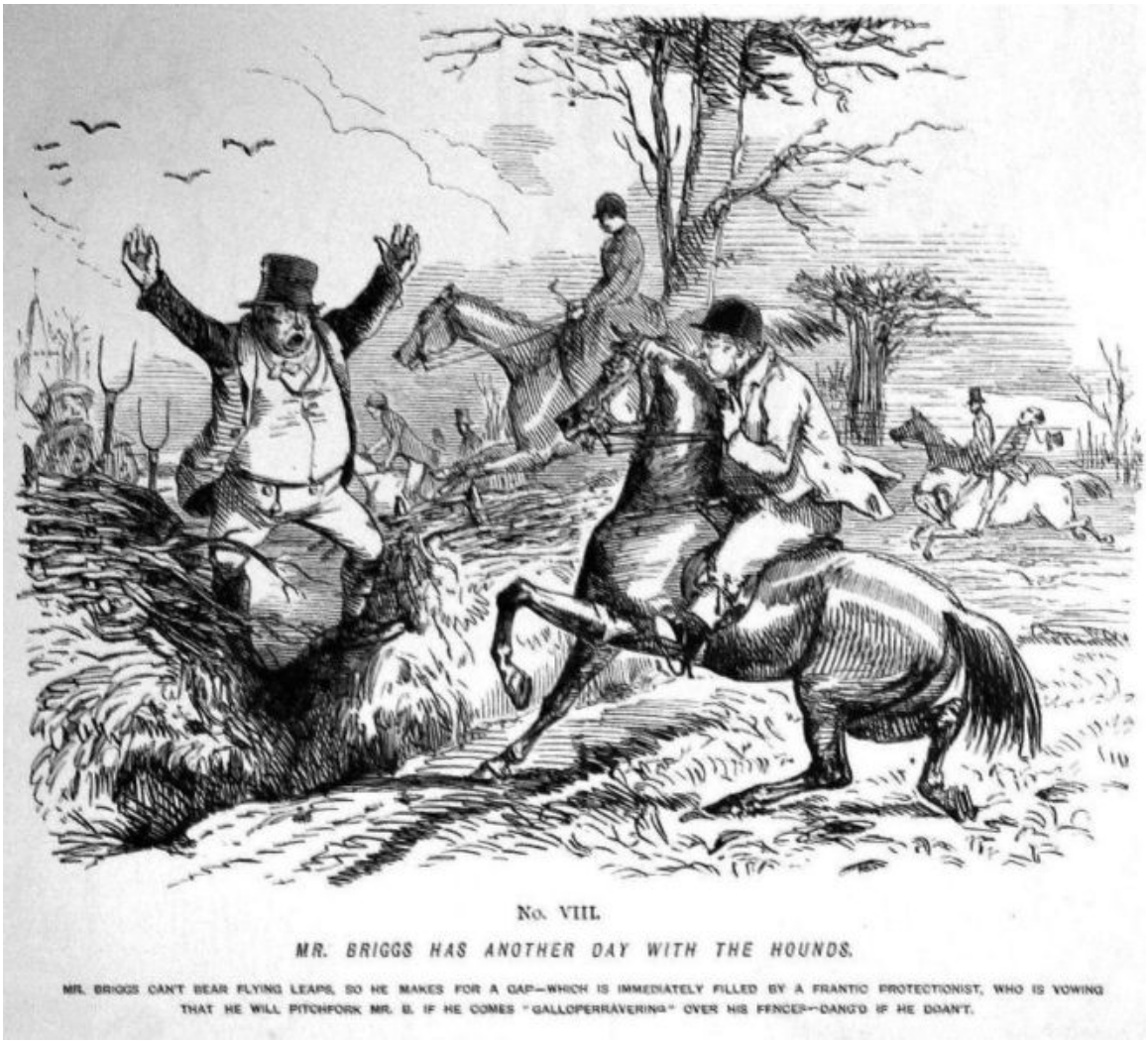
The construction of the law means that hunt saboteurs' behavior may result in charges of criminal aggravated trespass, rather than the less severe offence of civil trespass. Since the introduction of legislation to restrict hunting with hounds, there has been a level of confusion over the legal status of hunt monitors or saboteurs when trespassing, as if they disrupt the hunt whilst it is not committing an illegal act (as all the hunts claim to be hunting within the law) then they commit an offence, however if the hunt was conducting an illegal act then the criminal offence of trespass may not have been committed.

Available alternatives

Anti hunting campaigners long urged hunts to retain their tradition and equestrian sport by drag hunting, following an artificial scent. However, drag hunting is disliked by some advocates of quarry hunting due to the trail being pre-determined, thereby eliminating the uncertainty present in the live quarry hunt and because they tend to be faster. Supporters contend that while drag hunts can be fast, this need not be the case if the scent line is broken up so that the hounds have to search an area to pick up the line.

Hunt supporters previously claimed that, in the event of a ban, hunts would not be able to convert and that many hounds would have to be put down.

Social life and class issues in the UK



Punch magazine's "Mr. Briggs" cartoons illustrated issues over fox hunting during the 1850s.

In the UK, supporters of fox hunting regard it as a distinctive part of British culture generally, the basis of traditional crafts and a key part of social life in rural areas, an activity and spectacle enjoyed not only by the riders but also by others such as the *unmounted pack* which may follow along on foot, bicycle or 4x4. They see the social aspects of hunting as reflecting the demographics of the area; the Home Counties packs, for example, are very different from those in North Wales and Cumbria, where the hunts are very much the activity of farmers and the working class. The Banwen Miners Hunt has been used as an example, founded in a small Welsh mining village, although its membership now is by no means limited to miners, with a *cosmopolitan* make up.

Oscar Wilde, in his 1893 play *A Woman of No Importance*, once famously referred to "the English country gentleman galloping after a fox" as "the unspeakable in full pursuit of the uneatable." Even before the time of Wilde, much of the criticism of fox hunting

has been couched in terms of social class. They argue that while more "working class" blood sports such as cock fighting and badger baiting were long ago outlawed, fox hunting persists, although this argument can be countered with the fact that hare coursing, a more 'working class' sport was outlawed simultaneously to fox hunting with hounds in the UK. Philosopher Roger Scruton believes that the analogy with cock fighting and badger baiting is unfair because these sports were more cruel and did not involve any element of pest control.

John Leech had a series of "Mr. Briggs" cartoons in *Punch* during the 1850s, which illustrated class issues. More recently the British anarchist group Class War has argued explicitly for disruption of fox hunts on class warfare grounds and even published a book *The Rich at Play* examining the subject. Other groups with similar aims, such as 'Revolutions per minute' have also published papers which disparage fox hunting on the basis of the social class of its participants.

Polls in the UK have shown that the UK public equally divided as to whether or not hunt objectors hold their views based primarily on class grounds. Some people point to evidence of class bias in the voting patterns in the British House of Commons during voting on the hunting bill 2000-2001, with traditionally working class Labour forcing legislation through against the votes of normally middle and upper class Conservative members.

Chapter 6

Animal Rights

Animal rights

Animal rights advocates argue that animals ought to be viewed as persons, not property.

Description	Animals are members of the moral community.
Early proponents	Jeremy Bentham (1748–1832) Henry Salt (1851–1939)
Modern proponents	Peter Singer, Tom Regan, Gary Francione
Key texts	Salt's *Animals' Rights* (1894) Singer's *Animal Liberation* (1972)
Subject	Philosophy, ethics

Animal rights is the idea that the most basic interests of non-human animals should be afforded the same consideration as the similar interests of human beings. Advocates approach the issue from different philosophical positions, ranging from the protectionist side of the movement, presented by philosopher Peter Singer—with a utilitarian focus on suffering and consequences, rather than on the concept of rights—to the abolitionist side,

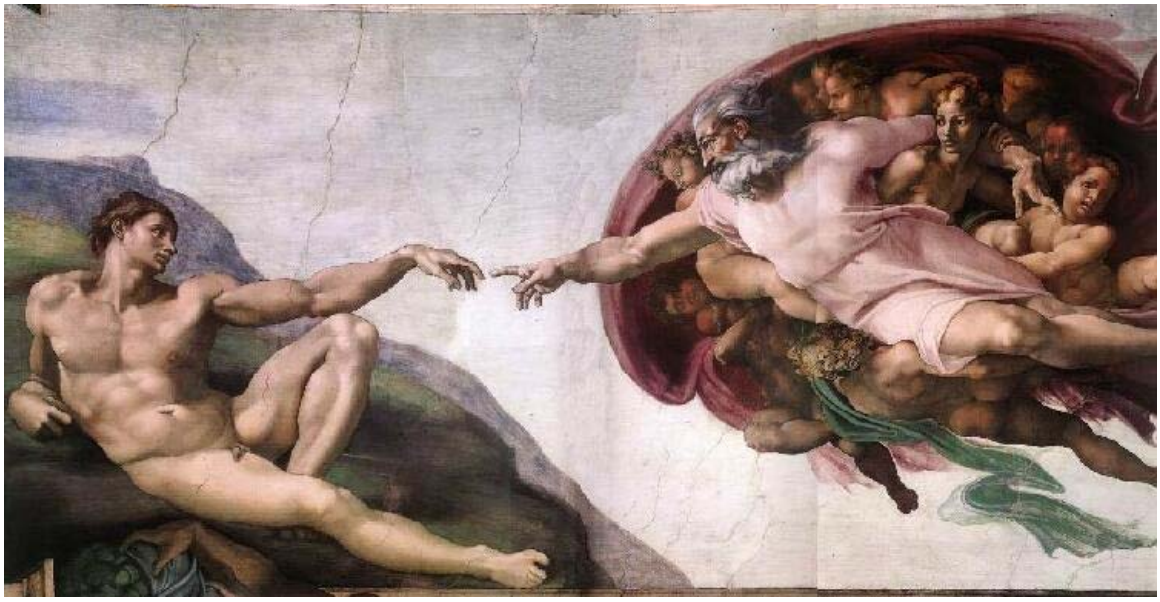
represented by law professor Gary Francione, who argues that animals need only one right: the right not to be property. Despite the different approaches, advocates broadly agree that animals should be viewed as non-human persons and members of the moral community, and should not be used as food, clothing, research subjects, or entertainment.

The idea of awarding rights to animals has the support of legal scholars such as Alan Dershowitz and Laurence Tribe of Harvard Law School. Animal rights is routinely covered in universities in philosophy or applied ethics courses, and as of spring 2010 animal law was taught in 125 law schools in the United States and Canada. Toronto lawyer Clayton Ruby argued in 2008 that the movement had reached the stage the gay rights movement was at 25 years earlier.

Critics of the idea argue that animals are unable to enter into a social contract or make moral choices, and for that reason cannot be regarded as possessors of rights, a position summed up by the philosopher Roger Scruton, who wrote in 2000 that only humans have duties and therefore only humans have rights. A parallel argument is that there is nothing inherently wrong with using animals as resources so long there is no unnecessary suffering, a view known as the animal welfare position. There has also been criticism, including from within the animal rights movement itself, of certain forms of animal rights activism, in particular the destruction of fur farms and animal laboratories by the Animal Liberation Front.

Development of the idea

Moral status of animals in the ancient world



Michelangelo's The Creation of Adam. The Book of Genesis said God gave humankind "dominion" over non-humans.

The 21st-century debates about how humans should treat animals can be traced to the ancient world. The idea that the use of animals by humans—for food, clothing, entertainment, and as research subjects—is morally acceptable, springs mainly from two sources. First, there is the idea of a divine hierarchy based on the theological concept of "dominion," from Genesis (1:20–28), where Adam is given "dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth." Although the concept of dominion need not entail property rights, it has been interpreted over the centuries to imply ownership. There is also the idea that animals are inferior because they lack rationality and language, and as such are worthy of less consideration than humans, or even none. Springing from this is the idea that individual animals have no separate moral identity: a pig is simply an example of the class of pigs, and it is to the class, not to the individual, that human stewardship should be applied. This leads to the argument that the use of individual animals is acceptable so long as the species is not threatened with extinction.

17th century: Animals as automata

1641: Descartes

Descartes' remains influential regarding how the issue of animal consciousness—or as he saw it, lack thereof—should be approached.

> “[Animals] eat without pleasure, cry without pain, grow without knowing it; they desire nothing,”

fear nothing,
know nothing. —
Nicolas
Malebranche
(1638–1715)

The great influence of the 17th century was the French philosopher, René Descartes (1596–1650), whose *Meditations* (1641) informed attitudes about animals well into the 20th century. Writing during the scientific revolution—of which he was one of the chief architects—Descartes proposed a mechanistic theory of the universe, the aim of which was to show that the world could be mapped out without allusion to subjective experience.

> “Hold then the same view of the dog which has lost his master, which has sought him in all the thoroughfares with cries of sorrow, which comes into the house troubled and restless, goes downstairs, goes upstairs; goes from room to room, finds at last in his study the master he loves, and betokens his gladness by soft whimpers, frisks, and caresses.
>
> There are barbarians who seize this dog, who so greatly surpasses man in fidelity and”

> friendship, and nail him down to a table and dissect him alive, to show you the mesaraic veins! You discover in him all the same organs of feeling as in yourself. Answer me, mechanist, has Nature arranged all the springs of feeling in this animal to the end that he might not feel? — Voltaire (1694–1778)

His mechanistic approach was extended to the issue of animal consciousness. Mind, for Descartes, was a thing apart from the physical universe, a separate substance, linking human beings to the mind of God. The non-human, on the other hand, are nothing but complex automata, with no souls, minds, or reason. They can see, hear, and touch, but they are not, in any sense, conscious, and are unable to suffer or even to feel pain.

In the *Discourse*, published in 1637, Descartes wrote that the ability to reason and use language involves being able to respond in complex ways to "all the contingencies of life," something that animals clearly cannot do. He argued from this that any sounds animals make do not constitute language, but are simply automatic responses to external stimuli.

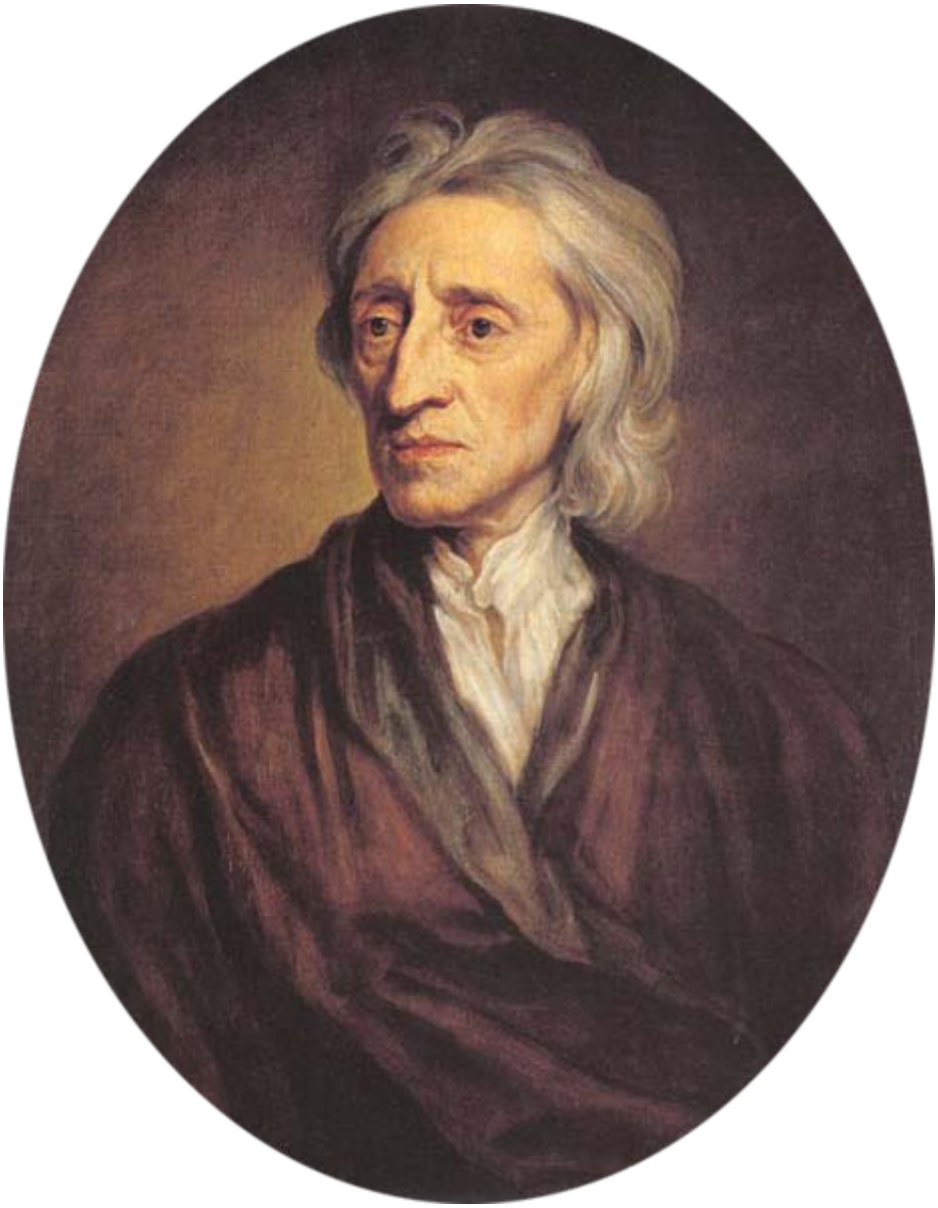
First known laws protecting animals in the English-speaking world

Richard Ryder writes that the first known legislation against animal cruelty in the English-speaking world was passed in Ireland in 1635. It prohibited pulling wool off sheep, and the attaching of ploughs to horses' tails, referring to "the cruelty used to beasts," which Ryde writes is probably the earliest reference to this concept in the English language. In 1641, the year Descartes' *Meditations* was published, the first legal code to protect domestic animals in North America was passed by the Massachusetts Bay Colony. The colony's constitution was based on *The Body of Liberties* by the Reverend Nathaniel Ward (1578–1652), a lawyer, Puritan clergyman, and University of Cambridge graduate, originally from Suffolk, England. Ward listed the "rites" the Colony's general court later endorsed, including rite number 92: "No man shall exercise any Tirrany or

Crueltie toward any bruite Creature which are usuallie kept for man's use." Historian Roderick Nash writes that, at the height of Descartes' influence in Europe, it is significant that the early New Englanders created a law that implied animals were not unfeeling automata.

The Puritans passed animal protection legislation in England too. Katheen Kete writes that animal welfare laws were passed in 1654 as part of the ordinances of the Protectorate—the government under Oliver Cromwell, which lasted 1653–1659—during the English Civil War. Cromwell disliked blood sports, particularly cockfighting, cock throwing, dog fighting, as well as bull baiting and bull running, said to tenderize the meat. These could frequently be seen in villages and fairgrounds, and became associated for the Puritans with idleness, drunkenness, and gambling. Kete writes that the Puritans interpreted the dominion of man over animals in the Book of Genesis to mean responsible stewardship, rather than ownership. The opposition to blood sports became part of what was seen as Puritan interference in people's lives, which became a leitmotif of resistance to them, Kete writes, and the animal protection laws were overturned during the Restoration, when Charles II was returned to the throne in 1660. Bull baiting remained lawful in England for another 162 years, until it was outlawed in 1822.

1693: Locke



John Locke argued against animal cruelty, but only because of its effect on human beings.

Against Descartes, the British philosopher John Locke (1632–1704) argued, in *Some Thoughts Concerning Education* in 1693, that animals do have feelings, and that unnecessary cruelty toward them is morally wrong, but—echoing Thomas Aquinas—the right not to be so harmed adhered either to the animal's owner, or to the person who was being harmed by being cruel, not to the animal itself. Discussing the importance of preventing children from tormenting animals, he wrote: "For the custom of tormenting and killing of beasts will, by degrees, harden their minds even towards men."

18th century: The centrality of sentience, not reason

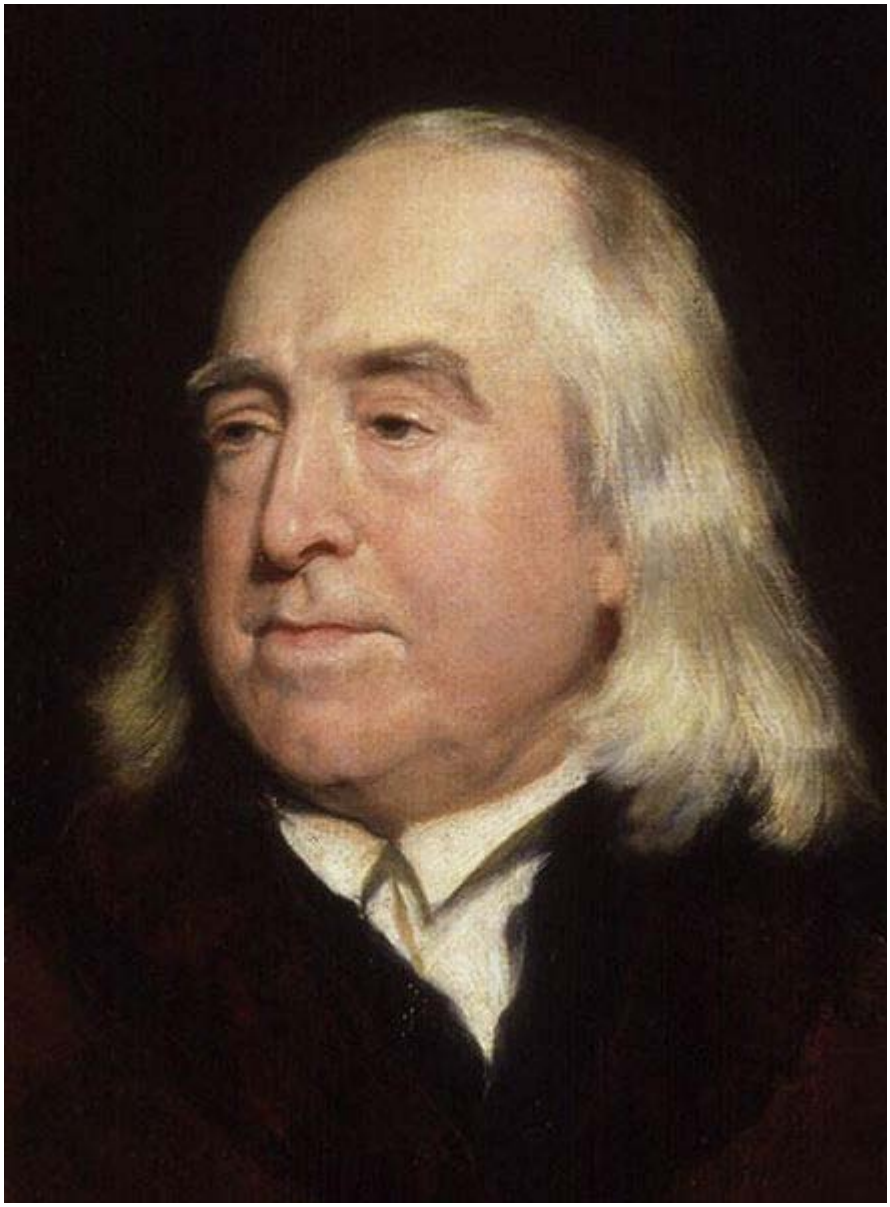
Jean-Jacques Rousseau argued in 1754 that animals are part of natural law, and have natural rights, because they are sentient.

1754, 1785: Rousseau, Kant

Jean-Jacques Rousseau (1712–1778) argued in Discourse on Inequality in 1754 that animals should be part of natural law, not because they are rational, but because they are sentient: "[Here] we put an end to the time-honoured disputes concerning the participation of animals in natural law: for it is clear that, being destitute of intelligence and liberty, they cannot recognize that law; as they partake, however, in some measure of our nature, in consequence of the sensibility with which they are endowed, they ought to partake of natural right; so that mankind is subjected to a kind of obligation even toward the brutes."

The German philosopher Immanuel Kant (1724–1804), following Locke, opposed the idea that humans have duties toward non-humans. For Kant, cruelty to animals was wrong solely on the grounds that it was bad for humankind. He argued in 1785 that humans have duties only toward other humans, and that "cruelty to animals is contrary to man's duty to *himself*, because it deadens in him the feeling of sympathy for their sufferings, and thus a natural tendency that is very useful to morality in relation to other humans is weakened." "Animals," he wrote, "... are there merely as a means to an end. That end is man."

1789: Bentham



Jeremy Bentham: "The time will come, when humanity will extend its mantle over every thing which breathes" (1781).

Four years later, one of the founders of modern utilitarianism, the English philosopher Jeremy Bentham (1748–1832), although deeply opposed to the concept of natural rights, argued, following Rousseau, that it was the ability to suffer, not the ability to reason, that should be the benchmark of how we treat other beings. If rationality were the criterion, many humans, including babies and disabled people, would also have to be treated as though they were things. He wrote in 1789, just as slaves were being freed by the French, but were still held captive in the British dominions:

The day has been, I grieve to say in many places it is not yet past, in which the greater part of the species, under the denomination of slaves, have been treated by the law exactly upon the same footing, as, in England for example, the inferior races of animals are still. The day *may* come when the rest of the animal creation may acquire those rights which never could have been withholden from them but by the hand of tyranny. The French have already discovered that the blackness of the skin is no reason a human being should be abandoned without redress to the caprice of a tormentor. It may one day come to be recognized that the number of the legs, the villosity of the skin, or the termination of the *os sacrum* are reasons equally insufficient for abandoning a sensitive being to the same fate. What else is it that should trace the insuperable line? Is it the faculty of reason or perhaps the faculty of discourse? But a full-grown horse or dog, is beyond comparison a more rational, as well as a more conversable animal, than an infant of a day or a week or even a month, old. But suppose the case were otherwise, what would it avail? the question is not, Can they *reason*?, nor Can they *talk*? but, Can they *suffer?*

1792: Thomas Taylor

Despite Rousseau and Bentham, the idea that animals did or ought to have rights remained ridiculous. When the British feminist Mary Wollstonecraft (1759–1797) published *A Vindication of the Rights of Woman* in 1792, Thomas Taylor (1758–1835), a Cambridge philosopher, responded with an anonymous tract called *Vindication of the Rights of Brutes*, intended as a *reductio ad absurdum*. Taylor took Wollstonecraft's arguments, and those of Thomas Paine's *Rights of Man* (1790), and showed that they applied equally to animals, leading to the conclusion that animals have "intrinsic and real dignity and worth," a conclusion absurd enough, in his view, to discredit Wollstonecraft's and Paine's positions entirely.

19th century: Emergence of *jus animalium*

> “What could be more innocent than bull baiting, boxing, or dancing? — George Canning, British Foreign Secretary, April 1800.”

The 19th century saw an explosion of interest in animal protection, particularly in England. Debbie Legge and Simon Brooman write that the educated classes became concerned about attitudes toward the old, the needy, children, and the insane, and that this concern was extended to non-humans. Before the 19th century, there had been

prosecutions for poor treatment of animals, but only because of the damage to the animal as property. In 1793, for example, John Cornish was found not guilty of maiming a horse after pulling its tongue out, the judge ruling that he could be found guilty only if there was evidence of malice toward the owner. From 1800 onwards, there were several attempts in England to introduce animal welfare or rights legislation. The first was a bill in 1800 against bull baiting, introduced by Sir William Pulteney, and opposed by the Secretary at War, William Windham, on the grounds that it was anti-working class. Another attempt was made in 1802 by William Wilberforce, again opposed by Windham, who said that the Bill was supported by Methodists and Jacobins who wished, for different reasons, to "destroy the Old English character, by the abolition of all rural sports" and that bulls, when they were in the ascendant in the contest, did not dislike the situation. In 1809, Lord Erskine introduced a bill to protect cattle and horses from malicious wounding, wanton cruelty, and beating, this one opposed by Windham because it would be used against the "lower orders" when the real culprits would be property owners. Judge Edward Abbott Parry writes that the House of Lords drowned Erskine out with cat calls and cock crowing.

1822: Martin's Act

The Trial of Bill Burns, showing Richard Martin with the donkey in an astonished courtroom.

In 1821, the Treatment of Horses bill was introduced by Colonel Richard Martin, MP for Galway in Ireland, but it was lost among laughter in the House of Commons that the next thing would be rights for asses, dogs, and cats. Nicknamed "Humanity Dick" by George IV, Martin finally succeeded in 1822 with his "Ill Treatment of Horses and Cattle Bill," or "Martin's Act", as it became known, the world's first major piece of animal protection legislation. It was given royal assent on June 22 that year as *An Act to prevent the cruel and improper Treatment of Cattle*, and made it an offence, punishable by fines up to five pounds or two months imprisonment, to "beat, abuse, or ill-treat any horse, mare, gelding, mule, ass, ox, cow, heifer, steer, sheep or other cattle."

> “ *If I had a donkey*
> *wot wouldn't go,*
>
> *D' ye think I'd*
> *wollop him? No,*
> *no, no!*
> *But gentle means*
> *I'd try, d' ye see,*
> *Because I hate*
> *all cruelty.*
> *If all had been*
> *like me, in fact,*
> *There'd ha' been*
> *no occasion for*
> *Martin's Act.*
> — Music hall ditty inspired by the prosecution under Martin's Act of Bill Burns for cruelty to a donkey. ”

Legge and Brooman argue that the success of the Bill lay in the personality of "Humanity Dick," who was able to shrug off the ridicule from the House of Commons, and whose own sense of humour managed to capture its attention. It was Martin himself who brought the first prosecution under the Act, when he had Bill Burns, a costermonger—a street seller of fruit—arrested for beating a donkey. Seeing in court that the magistrates seemed bored and didn't much care about the donkey, he sent for it, parading its injuries before a reportedly astonished court. Burns was fined, becoming the first person in the world known to have been convicted of animal cruelty. Newspapers and music halls were full of jokes about the "Trial of Bill Burns," as it became known, and how Martin had relied on the testimony of a donkey, giving Martin's Act some welcome publicity. The

trial became the subject of a painting (left), which hangs in the headquarters of the RSPCA in London.

Other countries followed suit in passing legislation or making decisions that favoured animals. In 1822, the courts in New York ruled that wanton cruelty to animals was a misdemeanor at common law. In France in 1850, Jacques Philippe Delmas de Grammont succeeded in having the *Loi Grammont* passed, outlawing cruelty against domestic animals, and leading to years of arguments about whether bulls could be classed as domestic in order to ban bullfighting. The state of Washington followed in 1859, New York in 1866, California in 1868, Florida in 1889. In England, a series of amendments extended the reach of the 1822 Act, which became the Cruelty to Animals Act 1835, outlawing cockfighting, baiting, and dog fighting, followed by another amendment in 1849, and again in 1876.

1824: Society for the Prevention of Cruelty to Animals

> “At a meeting of the Society instituted for the purpose of preventing cruelty to animals, on the 16th day of June 1824, at Old Slaughter's Coffee House, St. Martin's Lane: T F Buxton Esqr, MP, in the Chair,
>
> It was resolved:
>
> That a committee be appointed to superintend the Publication of Tracts, Sermons, and similar modes of influencing public opinion, to consist of the following ”

Gentlemen:

Sir Jas. Mackintosh MP, A Warre Esqr. MP, Wm. Wilberforce Esqr. MP, Basil Montagu Esqr., Revd. A Broome, Revd. G Bonner, Revd G A Hatch, A E Kendal Esqr., Lewis Gompertz Esqr., Wm. Mudford Esqr., Dr. Henderson.

Resolved also:

That a Committee be appointed to adopt measures for Inspecting the Markets and Streets of the Metropolis, the Slaughter Houses, the conduct of Coachmen, etc.- etc, consisting of the following Gentlemen:

T F Buxton Esqr. MP, Richard Martin Esqr., MP, Sir James Graham, L B Allen Esqr., C C Wilson Esqr., Jno. Brogden Esqr., Alderman

Brydges, A E
Kendal Esqr., E
Lodge Esqr., J
Martin Esqr. T G
Meymott Esqr.

A. Broome,

Honorary
Secretary

Richard Martin soon realized that magistrates did not take the Martin Act seriously, and that it was not being reliably enforced. Several members of parliament decided to form a society to bring prosecutions under the Act. The Reverend Arthur Broome, a Balliol man who had recently become the vicar of Bromley-by-Bow, arranged a meeting in Old Slaughter's Coffee House in St. Martin's Lane, a London café frequented by artists and actors. The group met on June 16, 1824, and included a number of MPs: Richard Martin, Sir James Mackintosh, Sir Thomas Buxton, William Wilberforce, and Sir James Graham, who had been an MP, and who became one again in 1826. They decided to form a "Society instituted for the purpose of preventing cruelty to animals," or the Society for the Prevention of Cruelty to Animals, as it became known. It determined to send men to inspect Smithfield Market, where livestock had been sold since the 10th century, as well as slaughterhouses, and the practices of coachmen toward their horses. The Society became the Royal Society in 1840, when it was granted a royal charter by Queen Victoria, herself strongly opposed to vivisection.

Noel Molland writes that, in 1824, Catherine Smithies, an anti-slavery activist, set up an SPCA youth wing called the Bands of Mercy. It was a children's club modeled on the Temperance Society's Bands of Hope, which were intended to encourage children to campaign against drinking and gambling. The Bands of Mercy were similarly meant to encourage a love of animals. Molland writes that some of its members responded with more enthusiasm than Smithies intended, and became known for engaging in direct action against hunters by sabotaging their rifles, although Kim Stallwood writes that he has never been able to find solid evidence to support this. Whether the story is true or apocryphal, the idea of the youth group was revived by Ronnie Lee in 1972, when he and Cliff Goodman set up the Band of Mercy as a militant, anti-hunting guerrilla group, which slashed hunters' vehicles' tires and smashed their windows. In 1976, some of the same activists, sensing that the Band of Mercy name sounded too accommodating, founded the Animal Liberation Front.

1866, 1985: American SPCA, Frances Power Cobbe

Frances Power Cobbe founded two of the world's first anti-vivisection societies.

The first animal protection group in the United States was the American Society for the Prevention of Cruelty to Animals (ASPCA), founded by Henry Bergh in April 1866. Bergh had been appointed by President Abraham Lincoln to a diplomatic post in Russia, and had been disturbed by the treatment of animals there. He consulted with the president of the RSPCA in London and returned to the U.S. to speak out against bullfights, cockfights, and the beating of horses. He created a "Declaration of the Rights of Animals," and in 1866 persuaded the New York state legislature to pass anti-cruelty legislation and to grant the ASPCA the authority to enforce it. The remainder of the century saw the creation of many animal protection groups. In 1875, the Irish feminist Frances Power Cobbe founded the Society for the Protection of Animals Liable to Vivisection, the world's first organization opposed to animal research, which became the National Anti-Vivisection Society. In 1898, she set up the British Union for the Abolition of Vivisection, with which she campaigned against the use of dogs in research, coming close to success with the 1919 Dogs (Protection) Bill, which almost became law.

1824: Development of the concept of animal rights

The period saw the first extended interest in the idea that non-humans might have natural rights, or ought to have legal ones. In 1824, Lewis Gompertz, one of the men who attended the first meeting of the SPCA in June that year, published *Moral Inquiries on the Situation of Man and of Brutes*, in which he argued that every living creature, human and non-human, has more right to the use of its own body than anyone else has to use it, and that our duty to promote happiness applies equally to all beings. In 1879, Edward Nicholson argued in *Rights of an Animal* that animals have the same natural right to life and liberty that human beings do, arguing strongly against Descartes' mechanistic view, or what he called the "Neo-Cartesian snake," that they lack consciousness. Other writers of the time who explored whether animals might have natural rights were John Lewis, Edward Evans, and J. Howard Moore.

1839: Schopenhauer

For Schopenhauer, the view that cruelty is wrong only because it hardens human beings was "revolting and abominable."

The development in England of the concept of animal rights was strongly supported by the German philosopher, Arthur Schopenhauer (1788–1860). He wrote that Europeans were "awakening more and more to a sense that beasts have rights, in proportion as the strange notion is being gradually overcome and outgrown, that the animal kingdom came into existence solely for the benefit and pleasure of man." He applauded the animal protection movement in England—"To the honor, then, of the English be it said that they are the first people who have, in downright earnest, extended the protecting arm of the law to animals."—and argued against the dominant Kantian idea that animal cruelty is wrong only insofar as it brutalizes humans: "Thus, because Christian morality leaves

animals out of account ... they are at once outlawed in philosophical morals; they are mere "things," mere *means* to any ends whatsoever. They can therefore be used for vivisection, hunting, coursing, bullfights, and horse racing, and can be whipped to death as they struggle along with heavy carts of stone. Shame on such a morality that is worthy of pariahs, chandalas, and mlechchhas, and that fails to recognize the eternal essence that exists in every living thing ... His views stopped short of advocating vegetarianism; he argued that, so long as an animal's death was quick, men would suffer more by not eating meat than animals would suffer by being eaten.

1894: Henry Salt and an "epistemological breakthrough"

In 1894, Henry Salt, a former master at Eton, who had set up the Humanitarian League to lobby for a ban on hunting the year before, created what Keith Tester of the University of Portsmouth has called an "epistemological break," in *Animals' Rights: Considered in Relation to Social Progress*. Salt wrote that the object of his essay was to "set the principle of animals' rights on a consistent and intelligible footing, [and] to show that this principle underlies the various efforts of humanitarian reformers ..." Concessions to the demands for *jus animalium* have been made grudgingly to date, he writes, with an eye on the interests of animals *qua* property, rather than as rights bearers:

Even the leading advocates of animal rights seem to have shrunk from basing their claim on the only argument which can ultimately be held to be a really sufficient one—the assertion that animals, as well as men, though, of course, to a far less extent than men, are possessed of a distinctive individuality, and, therefore, are in justice entitled to live their lives with a due measure of that "restricted freedom" to which Herbert Spencer alludes.

He argued that there is no point in claiming rights for animals if we subordinate those rights to human desire, and took issue with the idea that the life of a human might have more moral worth or purpose. "[The] notion of the life of an animal having 'no moral purpose,' belongs to a class of ideas which cannot possibly be accepted by the advanced humanitarian thought of the present day—it is a purely arbitrary assumption, at variance with our best instincts, at variance with our best science, and absolutely fatal (if the subject be clearly thought out) to any full realization of animals' rights. If we are ever going to do justice to the lower races, we must get rid of the antiquated notion of a "great gulf" fixed between them and mankind, and must recognize the common bond of humanity that unites all living beings in one universal brotherhood."

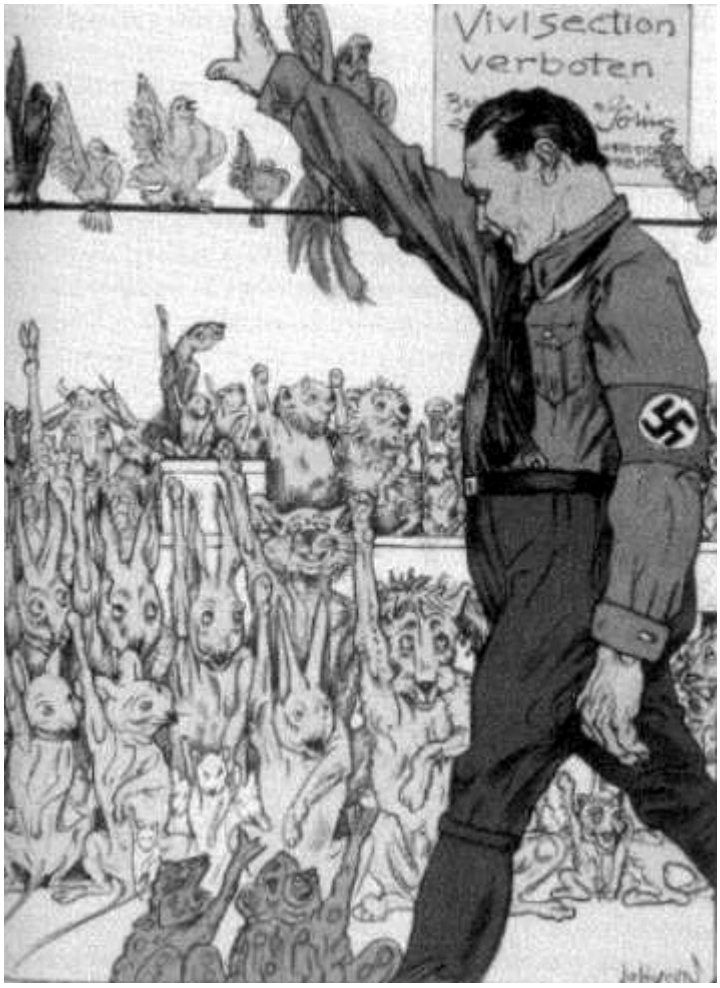
Late 1890s: Opposition to anthropomorphism

Richard Ryder writes that attitudes toward animals began to harden in the late 1890s, when scientists embraced the idea that what they saw as anthropomorphism—the attribution of human qualities to non-humans—was unscientific. Animals had to be approached as physiological entities only, as Ivan Pavlov wrote in 1927, "without any need to resort to fantastic speculations as to the existence of any possible subjective states." It was a position that hearkened back to Descartes in the 17th century, that non-

humans were purely mechanical, like clocks, with no rationality and perhaps even with no consciousness.

20th century: Animal rights movement

1933: *Tierschutzgesetz*



This cartoon appeared in *Kladderadatsch*, a German satirical magazine, on September 3, 1933, showing lab animals giving the Nazi salute to Hermann Göring, after restrictions on animal testing were announced.

On coming to power in January 1933, the Nazi Party passed the most comprehensive set of animal protection laws in Europe. Kathleen Kete writes that it was the first known attempt by a government to break the species barrier, the traditional binary of humans and animals. Humans as a species lost their sacrosanct status, with Aryans at the top of the hierarchy, followed by wolves, eagles, and pigs, and Jews languishing with rats at the bottom. Kete writes that it was the worst possible answer to the question of what our relationship with other species ought to be.

On November 24, 1933, the *Tierschutzgesetz*, or animal protection law, was introduced, with Adolf Hitler announcing an end to animal cruelty: "*Im neuen Reich darf es keine Tierquälerei mehr geben.*" ("In the new Reich, no more animal cruelty will be allowed.") It was followed on July 3, 1934 by the *Reichsjagdgesetz*, prohibiting hunting; on July 1, 1935 by the *Naturschutzgesetz*, a comprehensive piece of environmental legislation; on November 13, 1937 by a law regulating animal transport by car; and on September 8, 1938 by a similar one dealing with animals on trains. The least painful way to shoe a horse was prescribed, as was the correct way to cook a lobster to prevent them from being boiled alive. Several senior Nazis, including Hitler, Rudolf Hess, Joseph Goebbels, and Heinrich Himmler, adopted some form of vegetarianism, though by most accounts not strictly, with Hitler allowing himself the occasional dish of meat. Himmler also mandated vegetarianism for senior SS officers, although this was due mainly to health concerns rather than for animal welfare.

Shortly before the *Tierschutzgesetz* was introduced, vivisection was first banned, then restricted. Animal research was viewed as part of "Jewish science," and "internationalist" medicine, indicating a mechanistic mind that saw nature as something to be dominated, rather than respected. Hermann Göring first announced a ban on August 16, 1933, following Hitler's wishes, but Hitler's personal physician, Dr. Morrel, reportedly persuaded him that this was not in the interests of German research, and in particular defence research. The ban was therefore revised three weeks later, on September 5, 1933, when eight conditions were announced under which animal tests could be conducted, with a view to reducing pain and unnecessary experiments. Primates, horses, dogs, and cats were given special protection, and licenses to conduct vivisection were to be given to institutions, not to individuals. The removal of the ban was justified with the announcement: "It is a law of every community that, when necessary, single individuals are sacrificed in the interests of the entire body." Medical experiments were later conducted on Jews and Romani children in camps, particularly in Auschwitz by Dr. Josef Mengele, and on others regarded as inferior, including prisoners-of-war. Because the human subjects were often in such poor health, researchers feared that the results of the experiments were unreliable, and so human experiments were repeated on animals. Dr Hans Nachtheim, for example, induced epilepsy on human adults and children without their consent by injecting them with cardiazol, then repeated the experiments on rabbits to check the results.

Post 1945: Increase in animal use

Despite the proliferation of animal protection legislation, animals still had no legal rights. Debbie Legge writes that existing legislation was very much tied to the idea of human interests, whether protecting human sensibilities by outlawing cruelty, or protecting property rights by making sure animals were not damaged. The over-exploitation of fishing stocks, for example, is viewed as harming the environment for people; the hunting of animals to extinction means that humans in the future will derive no enjoyment from them; poaching results in financial loss to the owner, and so on. Notwithstanding the interest in animal welfare of the previous century, the situation for animals arguably deteriorated in the 20th century, particularly after the Second World War. This was in

part because of the increase in the numbers used in animal research—300 in the UK in 1875, 19,084 in 1903, and 2.8 million in 2005 (50–100 million worldwide), and an modern annual estimated range of 10 million to upwards of 100 million in the U.S.—but mostly because of the industrialization of farming, which saw billions of animals raised and killed for food on a scale not possible before the war.

1960s: Formation of the Oxford group

A small group of intellectuals, particularly at the University of Oxford—now known as the Oxford Group—began to view the use of animals as unacceptable exploitation. In 1964, Ruth Harrison published *Animal Machines*, a critique of factory farming, which proved influential. Psychologist Richard D. Ryder, who became a member of the Oxford Group, cites a 1965 *Sunday Times* article by novelist Brigid Brophy, called "The Rights of Animals"—following Thomas Paine's *Rights of Man* (1791)—as having encouraged his own interest. It was the first time a major newspaper had devoted so much space to the issue. Brophy wrote:

The relationship of homo sapiens to the other animals is one of unremitting exploitation. We employ their work; we eat and wear them. We exploit them to serve our superstitions: whereas we used to sacrifice them to our gods and tear out their entrails in order to foresee the future, we now sacrifice them to science, and experiment on their entrail in the hope—or on the mere offchance—that we might thereby see a little more clearly into the present ... To us it seems incredible that the Greek philosophers should have scanned so deeply into right and wrong and yet never noticed the immorality of slavery. Perhaps 3000 years from now it will seem equally incredible that we do not notice the immorality of our own oppression of animals.

Robert Garner writes that Harrison's and Brophy's articles led to an explosion of interest in the relationship between humans and non-humans, or what Garner calls the "new morality." Ryder had been disturbed by incidents he had seen as a researcher in animal laboratories in the UK and U.S., and in what he calls a spontaneous eruption of indignation he wrote several letters to *The Daily Telegraph*, which were published on April 7, May 3, and May 20, 1969. Brophy read them, and put Ryder in touch with Oxford philosophers Stanley and Roslind Godlovitch, and John Harris, who were working on a book about the treatment of animals. Ryder subsequently became a contributor to their highly influential *Animals, Men and Morals: An Inquiry into the Maltreatment of Non-humans* (1971), as did Harrison and Brophy. Rosalind Godlovitch's essay "Animal and Morals" was published in the same year. In 1970 Ryder coined the phrase "speciesism" in a privately printed pamphlet—having first thought of it in the bath—to describe the assignment of value to the interests of beings on the basis of species membership alone. Singer used the term in *Animal Liberation* in 1975, and it stuck, becoming an entry in the *Oxford English Dictionary* in 1989.

1975: Publication of *Animal Liberation*

In 1970, over lunch in Oxford with fellow student Richard Keshen, who was a vegetarian, Australian philosopher Peter Singer came to believe that, by eating animals, he was engaging in the oppression of other species. Keshen introduced Singer to the Godlovitches, and Singer and Roslind Godlovitch spent hours together refining their views. It was Singer's review of the Godlovitches' book in *The New York Review of Books* (April 5, 1973) that evolved into his *Animal Liberation* (1975), one of the animal rights movement's canonical texts. Singer based his arguments on the principle of utilitarianism, the view, broadly speaking, that an act is right if it leads to the "greatest happiness of the greatest number," a phrase first used in 1776 by Jeremy Bentham. He drew an explicit comparison between the liberation of women and the liberation of animals.

Although he regards himself as an animal rights advocate, Singer uses the term "right" as "shorthand for the kind of protection that we give to all members of our species." There is no rights theory in his work. He rejects the idea that humans or non-humans have natural or moral rights, and proposes instead the equal consideration of interests, arguing that there are no logical, moral, or biological grounds to suppose that a violation of the basic interests of a human—for example, the interest in not suffering—is different in any morally significant way from a violation of the basic interests of a non-human. Singer's position is that of the English philosopher Henry Sidgwick (1838–1900), who wrote: "The good of any one individual is of no more importance, from the point of view ... of the Universe, than the good of any other."

The publication of *Animal Liberation* triggered a groundswell of scholarly interest in animal rights. Tom Regan wrote in 2001 that philosophers had written more about animal rights in the previous 20 years than in the 2,000 years before that. Robert Garner writes that Charles Magel's extensive bibliography of the literature, *Keyguide to Information Sources in Animal Rights* (1989), contains 10 pages of philosophical material on animals up to 1970, but 13 pages between 1970 and 1989 alone.

1976: Founding of the Animal Liberation Front

In parallel with the development of the Oxford Group, grassroots activists set up the Animal Liberation Front in 1976.

In parallel with the Oxford Group, grassroots activists in England were also developing ideas about animal rights. A British law student, Ronnie Lee, formed an anti-hunting activist group in Luton in 1971, later calling it the Band of Mercy after a 19th-century RSPCA youth group. The Band attacked hunters' vehicles by slashing tires and breaking windows, calling it "active compassion." In November 1973 they engaged in their first act of arson when they set fire to a Hoechst Pharamaceuticals research laboratory near Milton Keynes; the Band claimed responsibility, identifying itself to the press as a "nonviolent guerilla organization dedicated to the liberation of animals from all forms of cruelty and persecution at the hands of mankind."

> *“The people who run this country, they have shares, they have investments in pharmaceutical companies ... who are experimenting on animals, so to think that you can write to”*

these people, and say "we don't like what you're doing, we want you to change," and expect them to do so, it's not going to happen.
— Keith Mann, ALF.

Lee and another activist were sentenced to three years in prison in August 1974. They were paroled after 12 months, with Lee emerging more militant than ever. In 1976 he brought together the remaining Band of Mercy activists along with some fresh faces, 30 activists in all, to start a new movement. He called it the Animal Liberation Front (ALF), a name he hoped would come to "haunt" those who used animals. The ALF is now active in 38 countries, operating as a leaderless resistance. Activists see themselves as a modern Underground Railroad, the network that helped slaves escape from the U.S. to Canada, passing animals from ALF cells, who have removed them from farms and laboratories, to sympathetic veterinarians to safe houses and finally to sanctuaries. Some activists also engage in threats, intimidation, and arson, acts that have lost the movement sympathy in mainstream public opinion.

> *My secretary called me to say that I had to contact ... the Metropolitan police ... to receive a fax of a press release that I was going to be murdered if an animal rights activist (Barry Horne on hunger strike) died. ... It's very difficult for [the children] to understand that Daddy goes to work every morning, and,*

you know, whether he's going to come back. — Clive Page, professor of pulmonary pharmacology, King's College, London.

The decentralized model of activism is intensely frustrating for law enforcement organizations, who find the cells and networks difficult to infiltrate, because they tend to be organized around known friends. In 2005, the U.S. Department of Homeland Security indicated how seriously it takes the ALF when it included them in a list of domestic terrorist threats. The tactics of some of the more determined ALF activists are anathema to many animal rights advocates, such as Singer, who regard the animal rights movement as something that should occupy the moral high ground, an impossible claim to sustain when others are bombing buildings and risking lives in the name of the same idea. ALF activists respond to the criticism with the argument that, as Ingrid Newkirk puts it, "Thinkers may prepare revolutions, but bandits must carry them out."

1980: Henry Spira and "reintegrative shaming"

Henry Spira, a former seaman and civil rights activist, became the most notable of the new animal advocates in the United States. A proponent of gradual change, he introduced the idea of "reintegrative shaming," whereby a relationship is formed between a group of animal rights advocates and a corporation they see as misusing animals, with a view to obtaining concessions or halting a particular practice. His first campaign was in opposition to the American Museum of Natural History in 1976, where cats were being experimented on, research that he persuaded them to halt. His most notable achievement was in 1980, when he convinced the cosmetics company Revlon to stop using the Draize test, whereby ingredients are dripped into the eyes of rabbits to test for toxicity. He famously took out a full-page ad in several newspapers, featuring a rabbit with sticking plaster over the eyes, which asked, "How many rabbits does Revlon blind for beauty's sake?" Revlon stopped using animals for cosmetics testing, donated money to help set up Center for Alternatives to Animal Testing, and was swiftly followed by other leading cosmetics companies. Spira's approach has been widely adopted by animal rights groups, most notably by People for the Ethical Treatment of Animals. It has its critics on the abolitionist side of the movement, such as Gary Francione, who argue that it aligns the movement with 19th-century animal welfare societies, making them "new welfarists," or animal protectionists, rather than animal rights groups. These critics say the approach takes the movement back to its roots in animal welfare, rather than moving toward the

paradigm shift the abolitionists want to see, whereby humans stop seeing animals as property, rather than as property to be treated kindly.

21st century: Developments

In January 2008, Austria's Supreme Court ruled that Matthew Hiasl Pan, a chimpanzee, was not a person, after the Association Against Animal Factories sought personhood status for it because its custodians went bankrupt. Matthew was captured as a baby in Sierra Leone in 1982, then smuggled to Austria to be used in pharmaceutical experiments, but was confiscated by customs officials when it arrived in the country and taken to the shelter instead. It was kept there for 25 years, but the group that ran the shelter went bankrupt in 2007. Donors offered to help it, but under Austrian law only a person can receive personal gifts, so any money sent to Matthew would be lost to the shelter's bankruptcy. The Association has appealed the ruling to the European Court of Human Rights. The lawyer proposing its personhood, Eberhart Theuer, has asked the court to appoint a legal guardian for Matthew and to grant it four rights: the right to life, limited freedom of movement, personal safety, and the right to claim property. In June 2008, a committee of Spain's national legislature became the first to vote for a resolution to extend limited rights to non-human primates. The parliamentary Environment Committee recommended giving chimpanzees, bonobos, gorillas, and orangutans the right not to be used in medical experiments or in circuses, and recommended making it illegal to kill apes, except in self-defense, based upon Peter Singer's Great Ape Project (GAP). The committee's proposal has not yet been enacted into law. In January 2010, a team of scientists announced research results suggesting that dolphins are second in intelligence only to human beings, and should be regarded as "non-human persons."

Main philosophical approaches

Overview

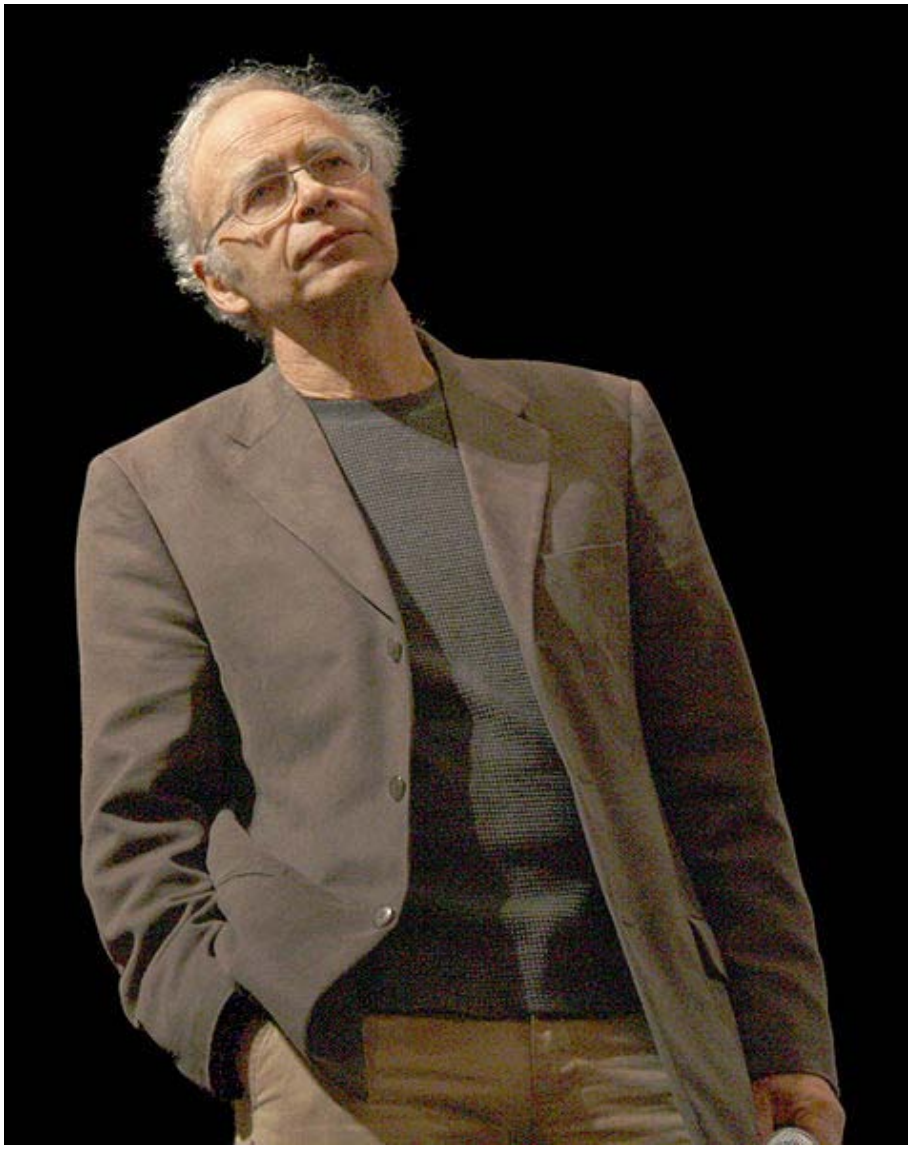
There are two main philosophical approaches to the issue of animal rights: a utilitarian and a rights-based one. The former is exemplified by Peter Singer, professor of bioethics at Princeton University, and the latter by Tom Regan, professor emeritus of philosophy at North Carolina State University, and Gary Francione, professor of law and philosophy at Rutgers School of Law-Newark. Their differences reflect a distinction philosophers draw between ethical theories that judge the rightness of an act by its consequences (called consequentialism, teleological ethics, or utilitarianism, which is Singer's position), and those that judge acts to be right or wrong *in themselves*, almost regardless of consequences (called deontological ethics, of which Regan and Francione are adherents). A consequentialist might argue, for example, that lying is wrong if the lie will make someone unhappy. A deontologist would argue that lying is wrong in principle.

Within the animal rights debate, Singer does not believe there are such things as natural rights and that animals have them, although he uses the language of rights as shorthand for how we ought to treat individuals. Instead, he argues that, when we weigh the consequences of an act in order to judge whether it is right or wrong, the interests of

animals—primarily their interest in avoiding suffering—ought to be given equal consideration to the similar interests of humans. That is, where the suffering of one individual, human or non-human, is equivalent to that of any other, there is no moral reason to award more weight to either one of them. Regan's and Francione's approaches are not driven by the weighing of consequences. Regan believes that animals are what he calls "subjects-of-a-life," who have moral rights for that reason, and that moral rights ought not to be ignored. Francione argues that animals have one moral right, and need one legal one: the right not to be regarded as property. All else will follow from that one paradigm shift, he argues.

Utilitarian approach

Peter Singer: Equal consideration of interests



Peter Singer is a utilitarian, not a rights theorist.

Singer is an act utilitarian, or more specifically a preference utilitarian, meaning that he judges the rightness of an act by its consequences, and specifically by the extent to which it satisfies the preferences of those affected, maximizing pleasure and minimizing pain. (There are other forms of utilitarianism, such as rule utilitarianism, which judges the rightness of an act according to the usual consequences of whichever moral rule the act is an instance of.)

Singer's position is that there are no moral grounds for failing to give equal consideration to the interests of human and non-humans. His principle of equality does not require equal or identical treatment, but equal consideration of interests. A mouse and a man both have an interest in not being kicked, because both would suffer, and there are no moral or logical grounds, Singer argues, for failing to accord their interests in not being kicked equal weight. Singer has been called, not a Humanist, but rather a Personist.

Singer quotes the English philosopher Henry Sidgwick: "The good of any one individual is of no more importance, from the point of view ... of the Universe, than the good of any other." This reflects Jeremy Bentham's position: "[E]ach to count for one, and none for more than one." Unlike a man or mouse, a stone does not suffer when kicked, and therefore has no interest in avoiding it. Interests, Singer argues, are predicated on the ability to suffer, and nothing more, and once it is established that a being has interests, those interests must be given equal consideration. The extent to which animals can suffer is therefore a key issue.

Animal suffering

Singer writes that commentators on all sides of the debate now accept that animals suffer and feel pain, although it was not always so. Bernard Rollin, a philosopher and professor of animal sciences, writes that Descartes' influence continued to be felt until the 1980s. Veterinarians trained in the U.S. before 1989 were taught to ignore pain, he writes, and at least one major veterinary hospital in the 1960s did not stock narcotic analgesics for animal pain control. In his interactions with scientists, he was often asked to "prove" that animals are conscious, and to provide "scientifically acceptable" evidence that they could feel pain.

Singer writes that scientific publications have made it clear over the last two decades that the majority of researchers do believe animals suffer and feel pain, though it continues to be argued that their suffering may be reduced by an inability to experience the same dread of anticipation as humans, or to remember the suffering as vividly. In the most recent edition of *Animal Liberation,* Singer cites research indicating that animal impulses, emotions, and feelings are located in the diencephalon, pointing out that this region is well developed in mammals and birds. Singer also relies on the work of Richard Sarjeant to support his position. Sarjeant pointed out that non-human animals possess anatomical complexity of the cerebral cortex and neuroanatomy that is nearly identical to that of the human nervous system, arguing that, "[e]very particle of factual evidence supports the contention that the higher mammalian vertebrates experience pain sensations at least as

acute as our own. To say that they feel less because they are lower animals is an absurdity; it can easily be shown that many of their senses are far more acute than ours."

The problem of animal suffering, and animal consciousness in general, arises primarily because animals have no language, leading scientists to argue that it is impossible to know when an animal is suffering. This situation may change as increasing numbers of chimps are taught sign language, although skeptics question whether their use of it portrays real understanding. Singer writes that, following the argument that language is needed to communicate pain, it would often be impossible to know when humans are in pain. All we can do is observe pain behavior, he writes, and make a calculated guess based on it. As Ludwig Wittgenstein argued, if someone is screaming, clutching a part of their body, moaning quietly, or apparently unable to function, especially when followed by an event that we believe would cause pain in ourselves, that is in large measure what it *means* to be in pain. Singer argues that there is no reason to suppose animal pain behavior would have a different meaning.

Equality a prescription, not a fact

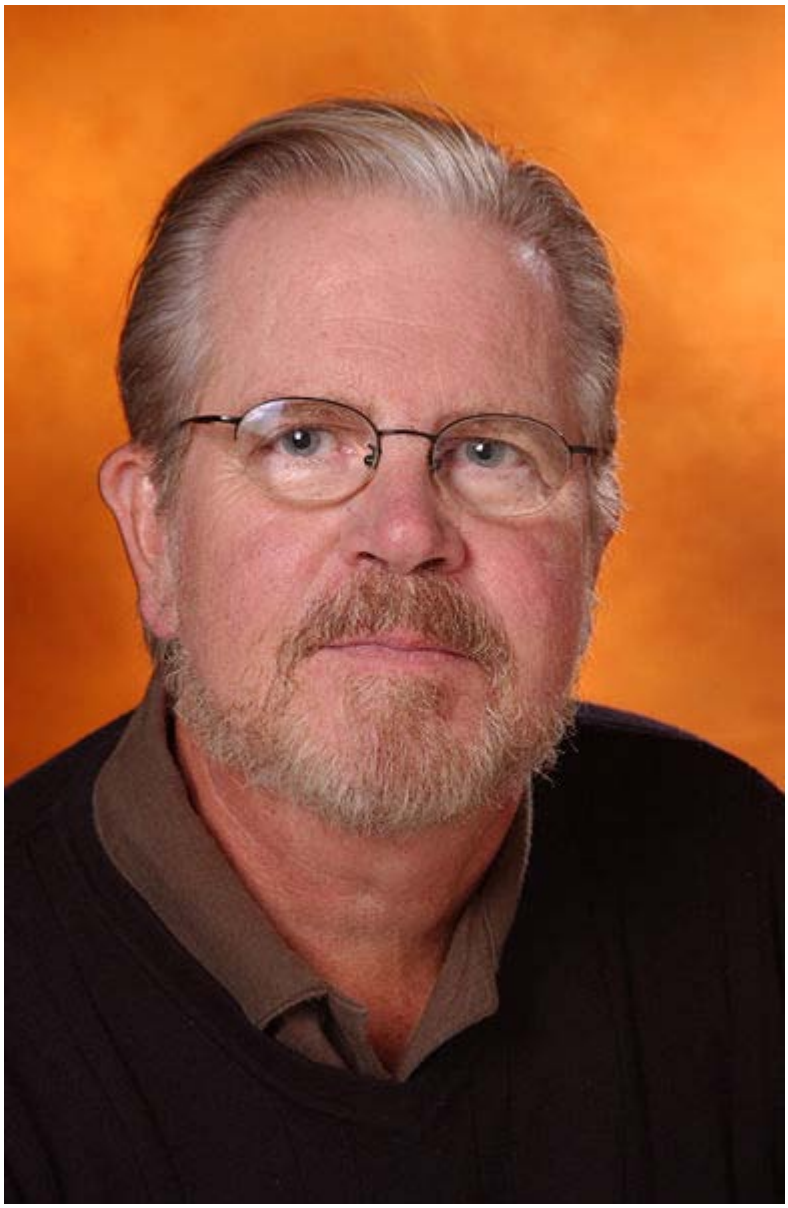
> *They talk about this thing in the head; what do they call it?* ["Intellect," whispered someone nearby.] *That's it. What's that got to do with women's rights or Negroes' rights? If my cup won't hold but a pint and yours holds a quart, wouldn't you be mean not to let me have my little half-measure full? —* Sojourner Truth

Singer argues that equality between humans is not based on anything factual, but is simply a prescription. Humans do, in fact, differ in many ways. If the equality of the sexes were based on the idea, for example, that men and women are in principle capable of being equally intelligent, but this was later found to be false, it would mean we would

have to abandon the practice of equal consideration. But equality of consideration is based on a prescription, not a description. It is, Singer writes, a moral idea, not an assertion of fact. He quotes President Thomas Jefferson, the principal author in 1776 of the American Declaration of Independence: "Because Sir Isaac Newton was superior to others in understanding, he was not therefore lord of the property or persons of others."

Rights-based approach

Tom Regan: Subjects-of-a-life



Tom Regan: animals are subjects-of-a-life.

Tom Regan argues in *The Case for Animal Rights* and *Empty Cages* that non-human animals are what he calls "subjects-of-a-life," and as such are bearers of rights. He argues

that, because the moral rights of humans are based on their possession of certain cognitive abilities, and because these abilities are also possessed by at least some non-human animals, such animals must have the same moral rights as humans. Although only humans act as moral agents, both marginal-case humans, such as infants, and at least some non-humans must have the status of "moral patients." Moral patients are unable to formulate moral principles, and as such are unable to do right or wrong, even though what they do may be beneficial or harmful. Only moral agents are able to engage in moral action.

Animals for Regan have "inherent value" as subjects-of-a-life, and cannot be regarded as a means to an end. This is also called the "direct duty" view. His theory does not extend to all sentient animals but only to those that can be regarded as subjects-of-a-life. He argues that all normal mammals of at least one year of age would qualify in this regard. Whereas Singer is primarily concerned with improving the treatment of animals and accepts that, in some hypothetical scenarios, individual animals might be used legitimately to further human or non-human ends, Regan believes we ought to treat non-human animals as we would humans. He applies the strict Kantian ideal (which Kant himself applied only to humans) that they ought never to be sacrificed as a means to an end, and must be treated as ends in themselves.

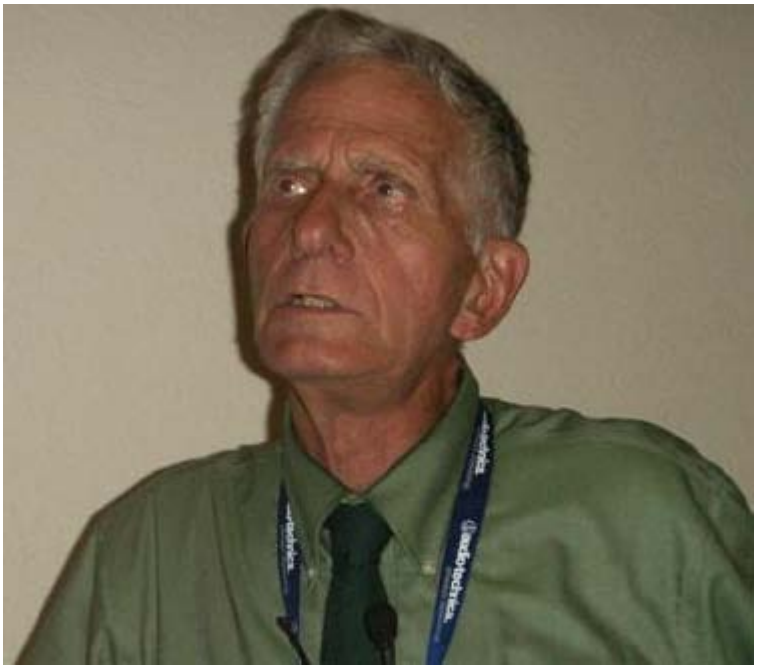
Gary Francione: Abolitionism

Gary Francione: animals need only one right, the right not to be owned.

Abolitionism falls within the framework of the rights-based approach, though it regards only one right as necessary: the right not to be owned. Abolitionists argue that the key to reducing animal suffering is to recognize that legal ownership of sentient beings is unjust and must be abolished. The most prominent of the abolitionists is Gary Francione, professor of law and philosophy at Rutgers School of Law-Newark. He argues that focusing on animal welfare may actually worsen the position of animals, because it entrenches the view of them as property, and makes the public more comfortable about using them. Francione calls animal rights group who pursue animal welfare issues, such as People for the Ethical Treatment of Animals, the "new welfarists," arguing that they have more in common with 19th-century animal protectionists than with the animal rights movement. His position is that there is no animal rights movement in the United States.

Critics

Carl Cohen



Carl Cohen argues that animals cannot distinguish their interests from what is right.

Critics such as Carl Cohen, professor of philosophy at the University of Michigan and the University of Michigan Medical School, oppose the granting of personhood to animals, arguing that rights holders must be able to distinguish between their own interests and what is right. "The holders of rights must have the capacity to comprehend rules of duty governing all, including themselves. In applying such rules, [they] ... must recognize possible conflicts between what is in their own interest and what is just. Only in a community of beings capable of self-restricting moral judgments can the concept of a right be correctly invoked." Cohen rejects Singer's argument that, since a brain-damaged human could not make moral judgments, moral judgments cannot be used as the distinguishing characteristic for determining who is awarded rights. Cohen writes that the test for moral judgment "is not a test to be administered to humans one by one," but should be applied to the capacity of members of the species in general.

Posner–Singer debate

Judge Richard Posner argues that "facts will drive equality."

Judge Richard Posner of the United States Court of Appeals for the Seventh Circuit debated the issue of animal rights with Peter Singer on *Slate*. Posner argues that his moral intuition tells him "that human beings prefer their own. If a dog threatens a human infant, even if it requires causing more pain to the dog to stop it, than the dog would have caused to the infant, then we favour the child. It would be monstrous to spare the dog."

Singer challenges Posner's moral intuition by arguing that formerly unequal rights for gays, women, and certain races were justified using the same set of intuitions. Posner replies that equality in civil rights did not occur because of ethical arguments, but because facts mounted that there were no morally significant differences between humans based on race, sex, or sexual orientation that would support inequality. If and when similar facts emerge about the difference, or lack thereof, between humans and animals, the differences in rights will erode too. But facts will drive equality, not ethical arguments that run contrary to instinct, he argues.

Posner calls his approach "soft utilitarianism," in contrast to Singer's "hard utilitarianism." He argues: "The "soft" utilitarian position on animal rights is a moral intuition of many, probably most, Americans. We realize that animals feel pain, and we think that to inflict pain without a reason is bad. Nothing of practical value is added by dressing up this intuition in the language of philosophy; much is lost when the intuition is made a stage in a logical argument. When kindness toward animals is levered into a duty of weighting the pains of animals and of people equally, bizarre vistas of social engineering are opened up."

Roger Scruton

> “ *Considerate la vostra semenza:*
>
> *Fatti non foste a viver come bruti,*
> *Ma per segue virtute e conoscenza.*
>
> ("You were not made to live as brutes
> but to follow virtue and knowledge.") ”
> — Dante, cited by Scruton.

The British philosopher Roger Scruton argues that rights imply obligations. Every legal privilege, he writes, imposes a burden on the one who does not possess that privilege: that is, "your right may be my duty." Scruton therefore regards the emergence of the animal rights movement as "the strangest cultural shift within the liberal worldview," because the idea of rights and responsibilities is, he argues, distinctive to the human condition, and it makes no sense to spread them beyond our own species He accuses animal rights advocates of "pre-scientific" anthropomorphism, attributing traits to animals that are, he says, Beatrix Potter-like, where "only man is vile." It is within this fiction that the appeal of animal rights lies, he argues. The world of animals is non-judgmental, filled with dogs who return our affection almost no matter what we do to them, and cats who pretend to be affectionate when, in fact, they care only about themselves. It is, he argues, a fantasy, a world of escape.

Chapter 7

Animal Testing

Animal testing

A white Wistar lab rat

Description	Around 50–100 million vertebrate animals are used in experiments annually.
Subjects	Animal testing, science, medicine, animal welfare, animal rights, ethics.

Animal testing, also known as **animal experimentation**, **animal research**, and **in vivo testing**, is the use of non-human animals in experiments. Worldwide it is estimated that the number of vertebrate animals—from zebrafish to non-human primates—ranges from the tens of millions to more than 100 million used annually. Invertebrates, mice, rats, birds, fish, frogs, and animals not yet weaned are not included in the figures; one estimate of mice and rats used in the United States alone in 2001 was 80 million. Most animals are euthanized after being used in an experiment. Sources of laboratory animals vary between countries and species; most animals are purpose-bred, while others are caught in the wild or supplied by dealers who obtain them from auctions and pounds.

The research is conducted inside universities, medical schools, pharmaceutical companies, farms, defense establishments, and commercial facilities that provide animal-testing services to industry. It includes pure research such as genetics, developmental biology, behavioral studies, as well as applied research such as biomedical research, xenotransplantation, drug testing and toxicology tests, including cosmetics testing.

Animals are also used for education, breeding, and defense research. The practice is regulated to various degrees in different countries.

Supporters of the use of animals in experiments, such as the British Royal Society, argue that virtually every medical achievement in the 20th century relied on the use of animals in some way, with the Institute for Laboratory Animal Research of the U.S. National Academy of Sciences arguing that even sophisticated computers are unable to model interactions between molecules, cells, tissues, organs, organisms, and the environment, making animal research necessary in many areas. A number of scientists, animal welfare, and animal rights organizations—such as PETA and BUAV—question the legitimacy of it, arguing that it is cruel, poor scientific practice, poorly regulated, that medical progress is being held back by misleading animal models, that some of the tests are outdated, that it cannot reliably predict effects in humans, that the costs outweigh the benefits, or that animals have an intrinsic right not to be used for experimentation.

Definitions

The terms animal testing, **animal experimentation**, animal research, ***in vivo* testing**, and **vivisection** have similar denotations but different connotations. Literally, "vivisection" means the "cutting up" of a living animal, and historically referred only to experiments that involved the dissection of live animals. The term is occasionally used to refer pejoratively to any experiment using living animals; for example, the *Encyclopædia Britannica* defines "vivisection" as: "Operation on a living animal for experimental rather than healing purposes; more broadly, all experimentation on live animals", although dictionaries point out that the broader definition is "used only by people who are opposed to such work". The word has a negative connotation, implying torture, suffering, and death. The word "vivisection" is preferred by those opposed to this research, whereas scientists typically use the term "animal experimentation".

History

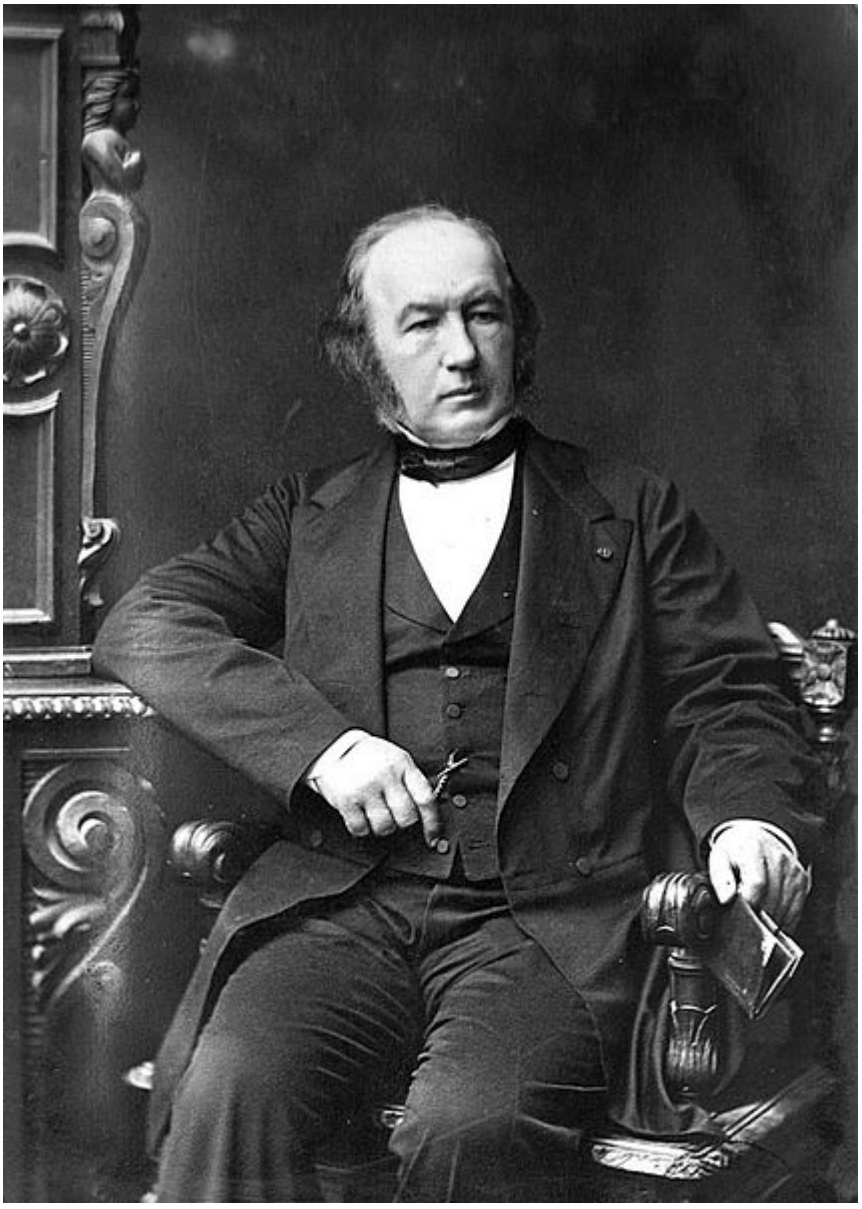
An Experiment on a Bird in an Air Pump, from 1768, by Joseph Wright

The earliest references to animal testing are found in the writings of the Greeks in the 2nd and 4th centuries BCE. Aristotle (Αριστοτέλης) (384–322 BCE) and Erasistratus (304–258 BCE) were among the first to perform experiments on living animals. Galen, a physician in 2nd-century Rome, dissected pigs and goats, and is known as the "father of vivisection." Avenzoar, an Arabic physician in 12th-century Moorish Spain who also practiced dissection, introduced animal testing as an experimental method of testing surgical procedures before applying them to human patients.

Animals have been used repeatedly through the history of biomedical research. In the 1880s, Louis Pasteur convincingly demonstrated the germ theory of medicine by inducing anthrax in sheep. In the 1890s, Ivan Pavlov famously used dogs to describe classical conditioning. Insulin was first isolated from dogs in 1922, and revolutionized the treatment of diabetes. On November 3, 1957, a Russian dog, Laika, became the first of many animals to orbit the earth. In the 1970s, antibiotic treatments and vaccines for leprosy were developed using armadillos, then given to humans. The ability of humans to change the genetics of animals took a large step forwards in 1974 when Rudolf Jaenisch was able to produce the first transgenic mammal, by integrating DNA from the SV40 virus into the genome of mice. This genetic research progressed rapidly and, in 1996, Dolly the sheep was born, the first mammal to be cloned from an adult cell.

Toxicology testing became important in the 20th century. In the 19th century, laws regulating drugs were more relaxed. For example, in the U.S., the government could only ban a drug after a company had been prosecuted for selling products that harmed customers. However, in response to the Elixir Sulfanilamide disaster of 1937 in which the eponymous drug killed more than 100 users, the U.S. congress passed laws that required safety testing of drugs on animals before they could be marketed. Other countries enacted similar legislation. In the 1960s, in reaction to the Thalidomide tragedy, further laws were passed requiring safety testing on pregnant animals before a drug can be sold.

Historical debate



Claude Bernard, regarded as the "prince of vivisectors" argued that experiments on animals are "entirely conclusive for the toxicology and hygiene of man".

As the experimentation on animals increased, especially the practice of vivisection, so did criticism and controversy. In 1655, the advocate of Galenic physiology Edmund O'Meara said that "the miserable torture of vivisection places the body in an unnatural state." O'Meara and others argued that animal physiology could be affected by pain during vivisection, rendering results unreliable. There were also objections on an ethical basis, contending that the benefit to humans did not justify the harm to animals. Early objections to animal testing also came from another angle — many people believed that animals were inferior to humans and so different that results from animals could not be applied to humans.

On the other side of the debate, those in favor of animal testing held that experiments on animals were necessary to advance medical and biological knowledge. Claude Bernard, known as the "prince of vivisectors" and the father of physiology—whose wife, Marie Françoise Martin, founded the first anti-vivisection society in France in 1883—famously wrote in 1865 that "the science of life is a superb and dazzlingly lighted hall which may be reached only by passing through a long and ghastly kitchen". Arguing that "experiments on animals ... are entirely conclusive for the toxicology and hygiene of man...the effects of these substances are the same on man as on animals, save for differences in degree," Bernard established animal experimentation as part of the standard scientific method.

In 1896, the physiologist and physician Dr. Walter B. Cannon said “The antivivisectionists are the second of the two types Theodore Roosevelt described when he said, ‘Common sense without conscience may lead to crime, but conscience without common sense may lead to folly, which is the handmaiden of crime.’ ” These divisions between pro- and anti- animal testing groups first came to public attention during the brown dog affair in the early 1900s, when hundreds of medical students clashed with anti-vivisectionists and police over a memorial to a vivisected dog.

One of Pavlov’s dogs with a saliva-catch container and tube surgically implanted in his muzzle, Pavlov Museum, 2005

In 1822, the first animal protection law was enacted in the British parliament, followed by the Cruelty to Animals Act (1876), the first law specifically aimed at regulating animal testing. The legislation was promoted by Charles Darwin, who wrote to Ray Lankester in March 1871: "You ask about my opinion on vivisection. I quite agree that it is justifiable for real investigations on physiology; but not for mere damnable and detestable curiosity. It is a subject which makes me sick with horror, so I will not say another word about it, else I shall not sleep to-night." Opposition to the use of animals in medical research first arose in the United States during the 1860s, when Henry Bergh founded the American Society for the Prevention of Cruelty to Animals (ASPCA), with America's first specifically anti-vivisection organization being the American AntiVivisection Society (AAVS), founded in 1883. Antivivisectionists of the era generally believed the spread of mercy was the great cause of civilization, and vivisection was cruel. However, in the USA the antivivisectionists' efforts were defeated in every legislature, overwhelmed by the superior organization and influence of the medical community. Overall, this movement had little legislative success until the passing of the Laboratory Animal Welfare Act, in 1966.

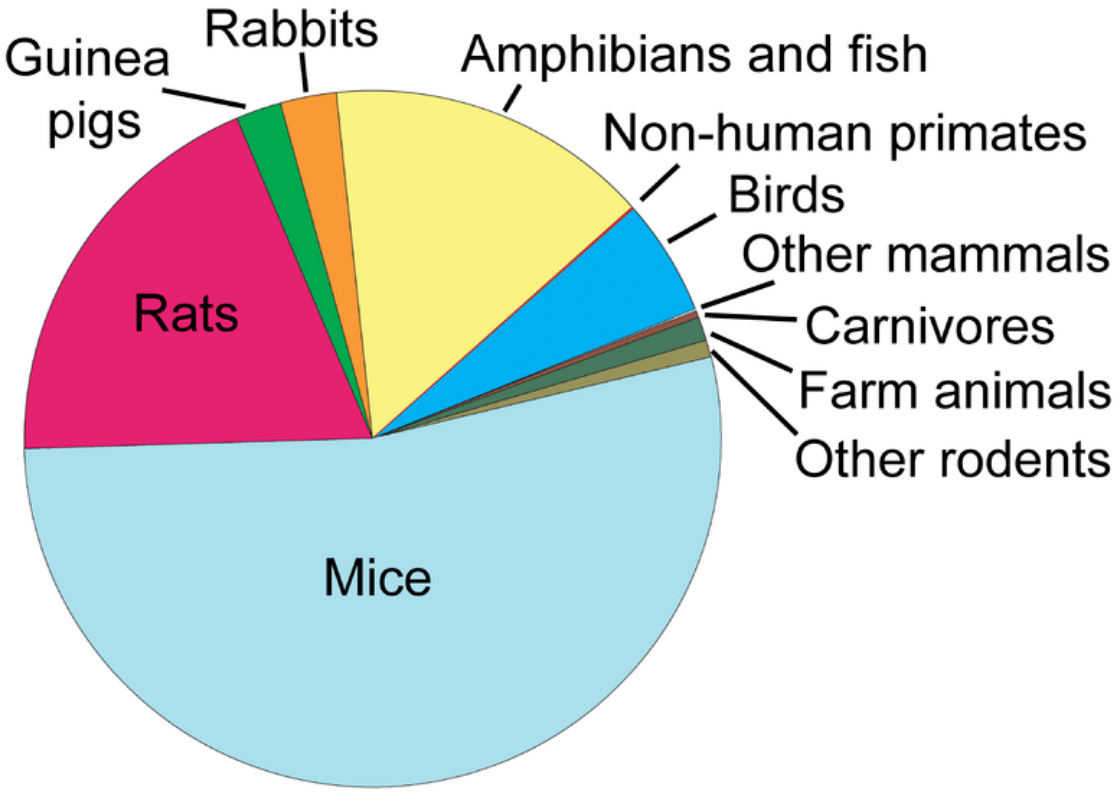
Care and use of animals

Regulations

The regulations that apply to animals in laboratories vary across species. In the U.S., under the provisions of the Animal Welfare Act and the *Guide for the Care and Use of Laboratory Animals* (the *Guide*), published by the National Academy of Sciences, any procedure can be performed on an animal if it can be successfully argued that it is scientifically justified. In general, researchers are required to consult with the institution's veterinarian and its Institutional Animal Care and Use Committee (IACUC), which every research facility is obliged to maintain. The IACUC must ensure that alternatives, including non-animal alternatives, have been considered, that the experiments are not unnecessarily duplicative, and that pain relief is given unless it would interfere with the study. Larry Carbone, a laboratory animal veterinarian, writes that, in his experience, IACUCs take their work very seriously regardless of the species involved, though the use of non-human primates always raises what he calls a "red flag of special concern." A study published in *Science* magazine in July 2001 confirmed the low reliability of IACUC reviews of animal experiments. Funded by the National Science Foundation, the three-year study found that animal-use committees that do not know the specifics of the university and personnel do not make the same approval decisions as those made by animal-use committees that do know the university and personnel. Specifically, blinded committees more often ask for more information rather than approving studies.

The IACUCs regulate all vertebrates in testing at institutions receiving federal funds in the USA. Although the provisions of the Animal Welfare Act do not include purpose-bred rodents and birds, these species are equally regulated under Public Health Service policies that govern the IACUCs. Animal Welfare Act regulations are enforced by the USDA, whereas Public Health Service regulations are enforced by OLAW and in many cases by AAALAC.

Numbers



Types of vertebrates used in animal testing in Europe in 2005: a total of 12.1 million animals were used.

Accurate global figures for animal testing are difficult to obtain. The British Union for the Abolition of Vivisection (BUAV) estimates that 100 million vertebrates are experimented on around the world every year, 10–11 million of them in the European Union. The Nuffield Council on Bioethics reports that global annual estimates range from 50 to 100 million animals. None of the figures include invertebrates such as shrimp and fruit flies. Animals bred for research then killed as surplus, animals used for breeding purposes, and animals not yet weaned are also not included in the figures.

According to the U.S. Department of Agriculture (USDA), the total number of animals used in that country in 2005 was almost 1.2 million, but this does not include rats and mice, which make up about 90% of research animals. In 1995, researchers at Tufts University Center for Animals and Public Policy estimated that 14–21 million animals were used in American laboratories in 1992, a reduction from a high of 50 million used in 1970. In 1986, the U.S. Congress Office of Technology Assessment reported that estimates of the animals used in the U.S. range from 10 million to upwards of 100 million each year, and that their own best estimate was at least 17 million to 22 million.

In the UK, Home Office figures show that 3.2 million procedures were carried out in 2007, a rise of 189,500 since the previous year. Four thousand procedures used non-

human primates, down 240 from 2006. A "procedure" refers to an experiment that might last minutes, several months, or years. Most animals are used in only one procedure: animals either die because of the experiment or are euthanized afterwards.

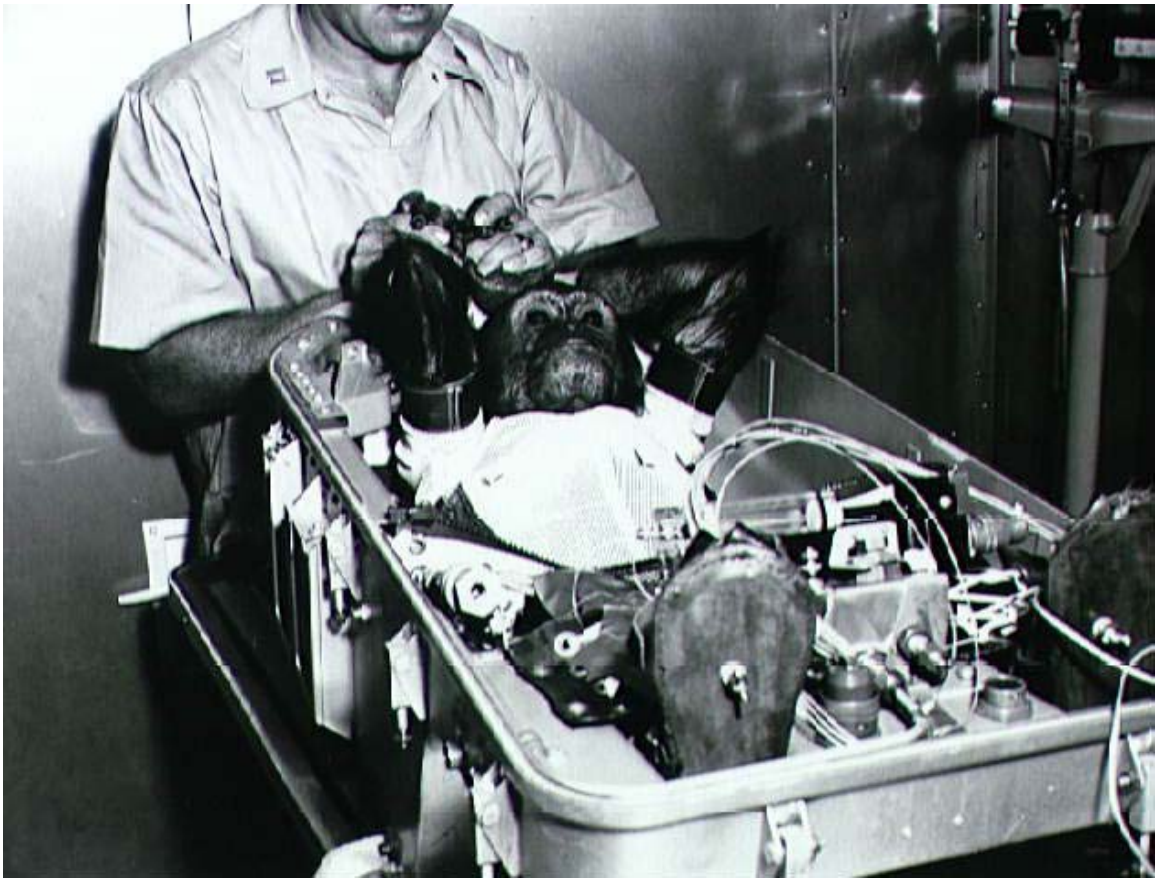
Species

Invertebrates

Fruit flies are commonly used.

Although many more invertebrates than vertebrates are used, these experiments are largely unregulated by law. The most used invertebrate species are *Drosophila melanogaster*, a fruit fly, and *Caenorhabditis elegans*, a nematode worm. In the case of *C. elegans*, the worm's body is completely transparent and the precise lineage of all the organism's cells is known, while studies in the fly *D. melanogaster* can use an amazing array of genetic tools. These animals offer great advantages over vertebrates, including their short life cycle and the ease with which large numbers may be studied, with thousands of flies or nematodes fitting into a single room. However, the lack of an adaptive immune system and their simple organs prevent worms from being used in medical research such as vaccine development. Similarly, flies are not widely used in applied medical research, as their immune system differs greatly from that of humans, and diseases in insects can be very different from diseases in vertebrates.

Vertebrates



Enos the space chimp before insertion into the Mercury-Atlas 5 capsule in 1961

This rat is being deprived of restful REM sleep by a researcher using a single platform ("flower pot") technique. The water is within 1 cm of the small flower pot bottom platform where the rat sits. At the onset of REM sleep, the rat would either fall into the water only to clamber back to its pot to avoid drowning, or its nose would become submerged into the water shocking it back to an awakened state.

In the U.S., the numbers of rats and mice used is estimated at 20 million a year. Other rodents commonly used are guinea pigs, hamsters, and gerbils. Mice are the most commonly used vertebrate species because of their size, low cost, ease of handling, and fast reproduction rate. Mice are widely considered to be the best model of inherited human disease and share 99% of their genes with humans. With the advent of genetic engineering technology, genetically modified mice can be generated to order and can provide models for a range of human diseases. Rats are also widely used for physiology, toxicology and cancer research, but genetic manipulation is much harder in rats than in mice, which limits the use of these rodents in basic science.

Nearly 200,000 fish and 20,000 amphibians were used in the UK in 2004. The main species used is the zebrafish, *Danio rerio*, which are translucent during their embryonic stage, and the African clawed frog, *Xenopus laevis*. Over 20,000 rabbits were used for animal testing in the UK in 2004. Albino rabbits are used in eye irritancy tests because rabbits have less tear flow than other animals, and the lack of eye pigment in albinos

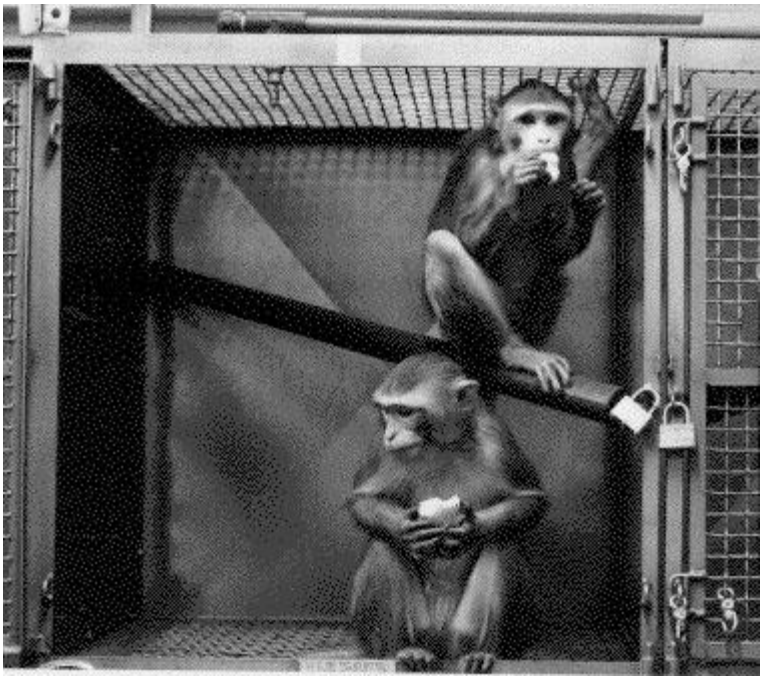
make the effects easier to visualize. Rabbits are also frequently used for the production of polyclonal antibodies.

Cats and dogs

Cats are most commonly used in neurological research. Over 25,500 cats were used in the U.S. in 2000, around half of whom were used in experiments which, according to the American Anti-Vivisection Society, had the potential to cause "pain and/or distress".

Dogs are widely used in biomedical research, testing, and education — particularly beagles, because they are gentle and easy to handle. They are commonly used as models for human diseases in cardiology, endocrinology, and bone and joint studies, research that tends to be highly invasive, according to the Humane Society of the United States. The U.S. Department of Agriculture's Animal Welfare Report for 2005 shows that 66,000 dogs were used in USDA-registered facilities in that year. In the U.S., some of the dogs are purpose-bred, while most are supplied by so-called Class B dealers licensed by the USDA to buy animals from auctions, shelters, newspaper ads, and who are sometimes accused of stealing pets.

Non-human primates



Around 65,000 primates are used each year in the U.S. and Europe.

Non-human primates (NHPs) are used in toxicology tests, studies of AIDS and hepatitis, studies of neurology, behavior and cognition, reproduction, genetics, and xenotransplantation. They are caught in the wild or purpose-bred. In the U.S. and China, most primates are domestically purpose-bred, whereas in Europe the majority are imported purpose-bred. Rhesus monkeys, cynomolgus monkeys, squirrel monkeys, and

owl monkeys are imported; around 12,000 to 15,000 monkeys are imported into the U.S. annually. In total, around 70,000 NHPs are used each year in the United States and European Union. Most of the NHPs used are macaques; but marmosets, spider monkeys, and squirrel monkeys are also used, and baboons and chimpanzees are used in the U.S; in 2006 there were 1133 chimpanzees in U.S. primate centers. The first transgenic primate was produced in 2001, with the development of a method that could introduce new genes into a rhesus macaque. This transgenic technology is now being applied in the search for a treatment for the genetic disorder Huntington's disease. Notable studies on non-human primates have been part of the polio vaccine development, and development of Deep Brain Stimulation, and their current heaviest non-toxicological use occurs in the monkey AIDS model, SIV. In 2008 a proposal to ban all primates experiments in the EU has sparked a vigorous debate.

Sources

Animals used by laboratories are largely supplied by specialist dealers. Sources differ for vertebrate and invertebrate animals. Most laboratories breed and raise flies and worms themselves, using strains and mutants supplied from a few main stock centers. For vertebrates, sources include breeders who supply purpose-bred animals; businesses that trade in wild animals; and dealers who supply animals sourced from pounds, auctions, and newspaper ads. Animal shelters also supply the laboratories directly. Large centers also exist to distribute strains of genetically-modified animals; the National Institutes of Health *Knockout Mouse Project*, for example, aims to provide knockout mice for every gene in the mouse genome.

A laboratory mouse cage. Mice are either bred commercially, or raised in the laboratory.

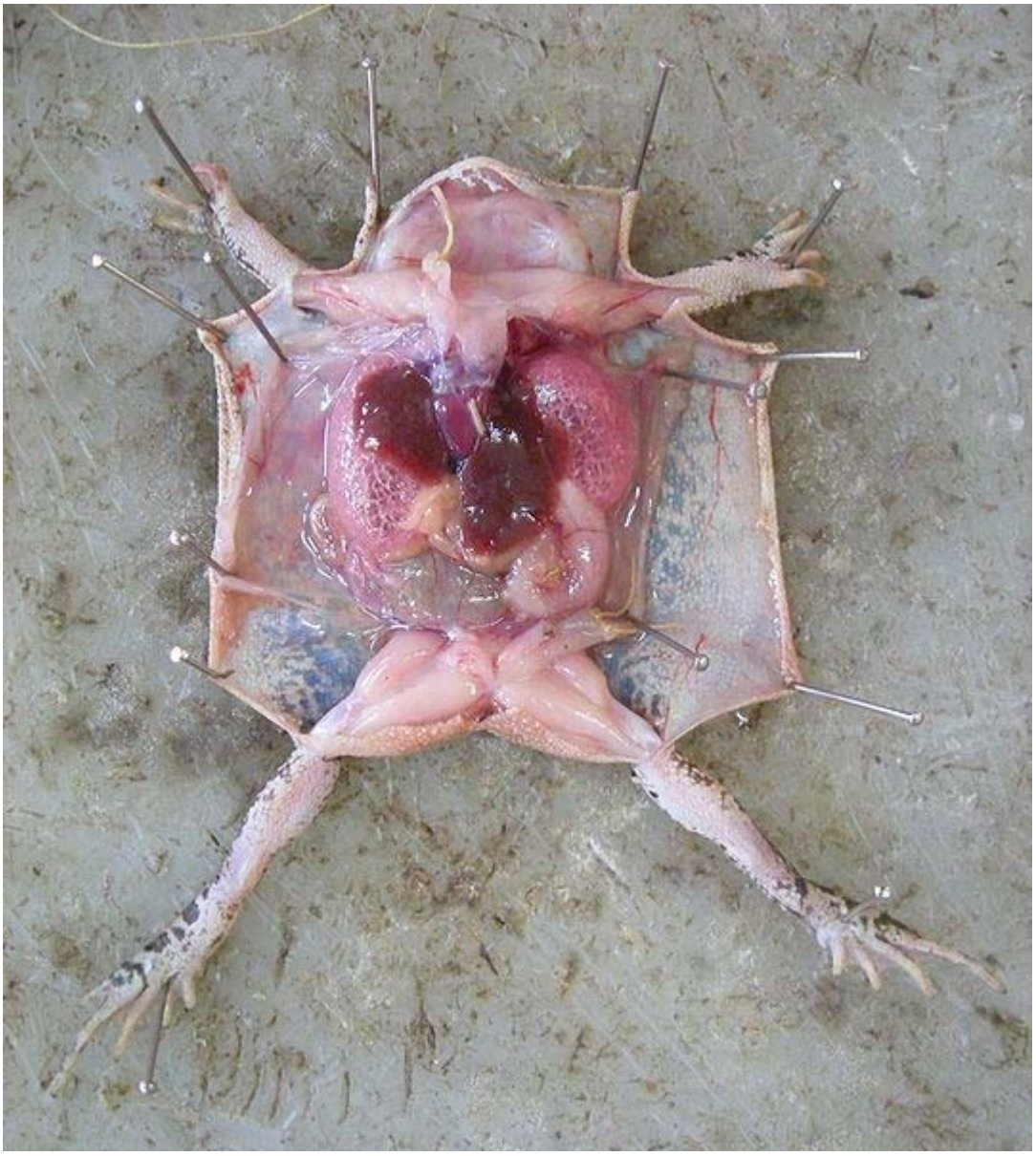
In the U.S., Class A breeders are licensed by the U.S. Department of Agriculture (USDA) to sell animals for research purposes, while Class B dealers are licensed to buy animals from "random sources" such as auctions, pound seizure, and newspaper ads. Some Class B dealers have been accused of kidnapping pets and illegally trapping strays, a practice known as *bunching*. It was in part out of public concern over the sale of pets to research facilities that the 1966 Laboratory Animal Welfare Act was ushered in — the Senate Committee on Commerce reported in 1966 that stolen pets had been retrieved from Veterans Administration facilities, the Mayo Institute, the University of Pennsylvania, Stanford University, and Harvard and Yale Medical Schools. The USDA recovered at least a dozen stolen pets during a raid on a Class B dealer in Arkansas in 2003.

Four states in the U.S. — Minnesota, Utah, Oklahoma, and Iowa — require their shelters to provide animals to research facilities. Fourteen states explicitly prohibit the practice, while the remainder either allow it or have no relevant legislation.

In the European Union, animal sources are governed by *Council Directive 86/609/EEC*, which requires lab animals to be specially bred, unless the animal has been lawfully imported and is not a wild animal or a stray. The latter requirement may also be exempted by special arrangement. In the UK, most animals used in experiments are bred for the purpose under the 1988 Animal Protection Act, but wild-caught primates may be

used if exceptional and specific justification can be established. The United States also allows the use of wild-caught primates; between 1995 and 1999, 1,580 wild baboons were imported into the U.S. Over half the primates imported between 1995 and 2000 were handled by Charles River Laboratories, Inc., or by Covance, which is the single largest importer of primates into the U.S.

Pain and suffering



Prior to vivisection for educational purposes, chloroform was administered to this common sand frog to induce terminal anesthesia.

The extent to which animal testing causes pain and suffering, and the capacity of animals to experience and comprehend them, is the subject of much debate.

According to the U.S. Department of Agriculture, in 2006 about 670,000 animals (57%) (not including rats, mice, birds, or invertebrates) were used in procedures that did not include more than momentary pain or distress. About 420,000 (36%) were used in procedures in which pain or distress was relieved by anesthesia, while 84,000 (7%) were used in studies that would cause pain or distress that would not be relieved.

In the UK, research projects are classified as mild, moderate, and substantial in terms of the suffering the researchers conducting the study say they may cause; a fourth category of "unclassified" means the animal was anesthetized and killed without recovering consciousness, according to the researchers. In December 2001, 1,296 (39%) of project licenses in force were classified as mild, 1,811 (55%) as moderate, 63 (2%) as substantial, and 139 (4%) as unclassified. There have, however, been suggestions of systemic underestimation of procedure severity.

The idea that animals might not feel pain as human beings feel it traces back to the 17th-century French philosopher, René Descartes, who argued that animals do not experience pain and suffering because they lack consciousness. Bernard Rollin of Colorado State University, the principal author of two U.S. federal laws regulating pain relief for animals, writes that researchers remained unsure into the 1980s as to whether animals experience pain, and that veterinarians trained in the U.S. before 1989 were simply taught to ignore animal pain. In his interactions with scientists and other veterinarians, he was regularly asked to "prove" that animals are conscious, and to provide "scientifically acceptable" grounds for claiming that they feel pain. Carbone writes that the view that animals feel pain differently is now a minority view. Academic reviews of the topic are more equivocal, noting that although the argument that animals have at least simple conscious thoughts and feelings has strong support, some critics continue to question how reliably animal mental states can be determined. The ability of invertebrate species of animals, such as insects, to feel pain and suffering is also unclear.

The defining text on animal welfare regulation, "Guide for the Care and Use of Laboratory Animals" defines the parameters that govern animal testing in the USA. It states "The ability to experience and respond to pain is widespread in the animal kingdom...Pain is a stressor and, if not relieved, can lead to unacceptable levels of stress and distress in animals." The Guide states that the ability to recognize the symptoms of pain in different species is vital in efficiently applying pain relief and that it is essential for the people caring for and using animals to be entirely familiar with these symptoms. On the subject of analgesics used to relieve pain, the Guide states "The selection of the most appropriate analgesic or anesthetic should reflect professional judgment as to which best meets clinical and humane requirements without compromising the scientific aspects of the research protocol". Accordingly, all issues of animal pain and distress, and their potential treatment with analgesia and anesthesia, are required regulatory issues in receiving animal protocol approval.

Euthanasia

There is general agreement that animal life should not be taken wantonly, and regulations require that scientists use as few animals as possible. However, while policy makers consider suffering to be the central issue and see animal euthanasia as a way to reduce suffering, others, such as the RSPCA, argue that the lives of laboratory animals have intrinsic value. Regulations focus on whether particular methods cause pain and suffering, not whether their death is undesirable in itself. The animals are euthanized at the end of studies for sample collection or post-mortem examination; during studies if their pain or suffering falls into certain categories regarded as unacceptable, such as depression, infection that is unresponsive to treatment, or the failure of large animals to eat for five days; or when they are unsuitable for breeding or unwanted for some other reason.

Methods of euthanizing laboratory animals are chosen to induce rapid unconsciousness and death without pain or distress. The methods that are preferred are those published by councils of veterinarians. The animal can be made to inhale a gas, such as carbon monoxide and carbon dioxide, by being placed in a chamber, or by use of a face mask, with or without prior sedation or anesthesia. Sedatives or anesthetics such as barbiturates can be given intravenously, or inhalant anesthetics may be used. Amphibians and fish may be immersed in water containing an anesthetic such as tricaine. Physical methods are also used, with or without sedation or anesthesia depending on the method. Recommended methods include decapitation (beheading) for small rodents or rabbits. Cervical dislocation (breaking the neck or spine) may be used for birds, mice, and immature rats and rabbits. Maceration (grinding into small pieces) is used on 1 day old chicks. High-intensity microwave irradiation of the brain can preserve brain tissue and induce death in less than 1 second, but this is currently only used on rodents. Captive bolts may be used, typically on dogs, ruminants, horses, pigs and rabbits. It causes death by a concussion to the brain. Gunshot may be used, but only in cases where a penetrating captive bolt may not be used. Some physical methods are only acceptable after the animal is unconscious. Electrocution may be used for cattle, sheep, swine, foxes, and mink after the animals are unconscious, often by a prior electrical stun. Pithing (inserting a tool into the base of the brain) is usable on animals already unconscious. Slow or rapid freezing, or inducing air embolism are acceptable only with prior anesthesia to induce unconsciousness.

Research classification

Pure research

Basic or pure research investigates how organisms behave, develop, and function. Those opposed to animal testing object that pure research may have little or no practical purpose, but researchers argue that it may produce unforeseen benefits, rendering the distinction between pure and applied research—research that has a specific practical aim—unclear. Pure research uses larger numbers and a greater variety of animals than applied research. Fruit flies, nematode worms, mice and rats together account for the vast

majority, though small numbers of other species are used, ranging from sea slugs through to armadillos. Examples of the types of animals and experiments used in basic research include:

- Studies on *embryogenesis* and *developmental biology*. Mutants are created by adding transposons into their genomes, or specific genes are deleted by gene targeting. By studying the changes in development these changes produce, scientists aim to understand both how organisms normally develop, and what can go wrong in this process. These studies are particularly powerful since the basic controls of development, such as the homeobox genes, have similar functions in organisms as diverse as fruit flies and man.

- Experiments into *behavior*, to understand how organisms detect and interact with each other and their environment, in which fruit flies, worms, mice, and rats are all widely used. Studies of brain function, such as memory and social behavior, often use rats and birds. For some species, behavioral research is combined with enrichment strategies for animals in captivity because it allows them to engage in a wider range of activities.

- Breeding experiments to study *evolution* and *genetics*. Laboratory mice, flies, fish, and worms are inbred through many generations to create strains with defined characteristics. These provide animals of a known genetic background, an important tool for genetic analyses. Larger mammals are rarely bred specifically for such studies due to their slow rate of reproduction, though some scientists take advantage of inbred domesticated animals, such as dog or cattle breeds, for comparative purposes. Scientists studying how animals evolve use many animal species to see how variations in where and how an organism lives (their niche) produce adaptations in their physiology and morphology. As an example, sticklebacks are now being used to study how many and which types of mutations are selected to produce adaptations in animals' morphology during the evolution of new species.

Applied research

Applied research aims to solve specific and practical problems. Compared to pure research, which is largely academic in origin, applied research is usually carried out in the pharmaceutical industry, or by universities in commercial partnerships. These may involve the use of animal models of diseases or conditions, which are often discovered or generated by pure research programmes. In turn, such applied studies may be an early stage in the drug discovery process. Examples include:

- Genetic modification of animals to study disease. Transgenic animals have specific genes inserted, modified or removed, to mimic specific conditions such as single gene disorders, such as Huntington's disease. Other models mimic complex, multifactorial diseases with genetic components, such as diabetes, or even transgenic mice that carry the same mutations that occur during the

development of cancer. These models allow investigations on how and why the disease develops, as well as providing ways to develop and test new treatments. The vast majority of these transgenic models of human disease are lines of mice, the mammalian species in which genetic modification is most efficient. Smaller numbers of other animals are also used, including rats, pigs, sheep, fish, birds, and amphibians.

- Studies on models of naturally occurring disease and condition. Certain domestic and wild animals have a natural propensity or predisposition for certain conditions that are also found in humans. Cats are used as a model to develop immunodeficiency virus vaccines and to study leukemia because their natural predisposition to FIV and Feline leukemia virus. Certain breeds of dog suffer from narcolepsy making them the major model used to study the human condition. Armadillos and humans are among only a few animal species that naturally suffer from leprosy; as the bacteria responsible for this disease cannot yet be grown in culture, armadillos are the primary source of bacilli used in leprosy vaccines.

- Studies on induced animal models of human diseases. Here, an animal is treated so that it develops pathology and symptoms that resemble a human disease. Examples include restricting blood flow to the brain to induce stroke, or giving neurotoxins that cause damage similar to that seen in Parkinson's disease. Such studies can be difficult to interpret, and it is argued that they are not always comparable to human diseases. For example, although such models are now widely used to study Parkinson's disease, the British anti-vivisection interest group BUAV argues that these models only superficially resemble the disease symptoms, without the same time course or cellular pathology. In contrast, scientists assessing the usefulness of animal models of Parkinson's disease, as well as the medical research charity *The Parkinson's Appeal*, state that these models were invaluable and that they led to improved surgical treatments such as pallidotomy, new drug treatments such as levodopa, and later deep brain stimulation.

Xenotransplantation

Xenotransplantation research involves transplanting tissues or organs from one species to another, as a way to overcome the shortage of human organs for use in organ transplants. Current research involves using primates as the recipients of organs from pigs that have been genetically-modified to reduce the primates' immune response against the pig tissue. Although transplant rejection remains a problem, recent clinical trials that involved implanting pig insulin-secreting cells into diabetics did reduce these people's need for insulin.

Documents released to the news media by the animal rights organization Uncaged Campaigns showed that, between 1994 and 2000, wild baboons imported to the UK from Africa by Imutran Ltd, a subsidiary of Novartis Pharma AG, in conjunction with

Cambridge University and Huntingdon Life Sciences, to be used in experiments that involved grafting pig tissues, suffered serious and sometimes fatal injuries. A scandal occurred when it was revealed that the company had communicated with the British government in an attempt to avoid regulation.

Toxicology testing

Toxicology testing, also known as safety testing, is conducted by pharmaceutical companies testing drugs, or by contract animal testing facilities, such as Huntingdon Life Sciences, on behalf of a wide variety of customers. According to 2005 EU figures, around one million animals are used every year in Europe in toxicology tests; which are about 10% of all procedures. According to *Nature*, 5,000 animals are used for each chemical being tested, with 12,000 needed to test pesticides. The tests are conducted without anesthesia, because interactions between drugs can affect how animals detoxify chemicals, and may interfere with the results.

A rabbit during a Draize test

Toxicology tests are used to examine finished products such as pesticides, medications, food additives, packing materials, and air freshener, or their chemical ingredients. Most tests involve testing ingredients rather than finished products, but according to BUAV, manufacturers believe these tests overestimate the toxic effects of substances; they therefore repeat the tests using their finished products to obtain a less toxic label.

The substances are applied to the skin or dripped into the eyes; injected intravenously, intramuscularly, or subcutaneously; inhaled either by placing a mask over the animals and restraining them, or by placing them in an inhalation chamber; or administered orally, through a tube into the stomach, or simply in the animal's food. Doses may be given once, repeated regularly for many months, or for the lifespan of the animal.

There are several different types of acute toxicity tests. The LD_{50} ("Lethal Dose 50%") test is used to evaluate the toxicity of a substance by determining the dose required to kill 50% of the test animal population. This test was removed from OECD international guidelines in 2002, replaced by methods such as the fixed dose procedure, which use fewer animals and cause less suffering. *Nature* writes that, as of 2005, "the LD50 acute toxicity test ... still accounts for one-third of all animal [toxicity] tests worldwide." Irritancy can be measured using the Draize test, where a test substance is applied to an animal's eyes or skin, usually an albino rabbit. For Draize eye testing, the test involves observing the effects of the substance at intervals and grading any damage or irritation, but the test should be halted and the animal killed if it shows "continuing signs of severe pain or distress". The Humane Society of the United States writes that the procedure can cause redness, ulceration, hemorrhaging, cloudiness, or even blindness. This test has also been criticized by scientists for being cruel and inaccurate, subjective, over-sensitive, and failing to reflect human exposures in the real world. Although no accepted *in vitro* alternatives exist, a modified form of the Draize test called the *low volume eye test* may reduce suffering and provide more realistic results and this was adopted as the new standard in September 2009. However, the Draize test will still be used for substances that are not severe irritants.

The most stringent tests are reserved for drugs and foodstuffs. For these, a number of tests are performed, lasting less than a month (acute), one to three months (subchronic), and more than three months (chronic) to test general toxicity (damage to organs), eye and skin irritancy, mutagenicity, carcinogenicity, teratogenicity, and reproductive problems. The cost of the full complement of tests is several million dollars per substance and it may take three or four years to complete.

These toxicity tests provide, in the words of a 2006 United States National Academy of Sciences report, "critical information for assessing hazard and risk potential". *Nature* reported that most animal tests either over- or underestimate risk, or do not reflect toxicity in humans particularly well, with false positive results being a particular problem. This variability stems from using the effects of high doses of chemicals in small numbers of laboratory animals to try to predict the effects of low doses in large numbers of humans. Although relationships do exist, opinion is divided on how to use data on one species to predict the exact level of risk in another.

Cosmetics testing

Products in Europe not tested on animals carry this symbol.

Cosmetics testing on animals is particularly controversial. Such tests, which are still conducted in the U.S., involve general toxicity, eye and skin irritancy, phototoxicity (toxicity triggered by ultraviolet light) and mutagenicity.

Cosmetics testing is banned in the Netherlands, Belgium, and the UK, and in 2002, after 13 years of discussion, the European Union (EU) agreed to phase in a near-total ban on the sale of animal-tested cosmetics throughout the EU from 2009, and to ban all cosmetics-related animal testing. France, which is home to the world's largest cosmetics company, L'Oreal, has protested the proposed ban by lodging a case at the European Court of Justice in Luxembourg, asking that the ban be quashed. The ban is also opposed by the European Federation for Cosmetics Ingredients, which represents 70 companies in Switzerland, Belgium, France, Germany and Italy.

Drug testing

Beagles used for safety testing of pharmaceuticals in a British facility

Before the early 20th century, laws regulating drugs were lax. Currently, all new pharmaceuticals undergo rigorous animal testing before being licensed for human use. Tests on pharmaceutical products involve:

- *metabolic tests*, investigating pharmacokinetics – how drugs are absorbed, metabolized and excreted by the body when introduced orally, intravenously, intraperitoneally, intramuscularly, or transdermally.

- *toxicology tests*, which gauge acute, sub-acute, and chronic toxicity. Acute toxicity is studied by using a rising dose until signs of toxicity become apparent. Current European legislation demands that "acute toxicity tests must be carried out in two or more mammalian species" covering "at least two different routes of administration". Sub-acute toxicity is where the drug is given to the animals for four to six weeks in doses below the level at which it causes rapid poisoning, in order to discover if any toxic drug metabolites build up over time. Testing for chronic toxicity can last up to two years and, in the European Union, is required to involve two species of mammals, one of which must be non-rodent.

- *efficacy studies*, which test whether experimental drugs work by inducing the appropriate illness in animals. The drug is then administered in a double-blind controlled trial, which allows researchers to determine the effect of the drug and the dose-response curve.
- Specific tests on *reproductive function*, *embryonic toxicity*, or *carcinogenic potential* can all be required by law, depending on the result of other studies and the type of drug being tested.

Education, breeding, and defense

Animals are also used for education and training; are bred for use in laboratories; and are used by the military to develop weapons, vaccines, battlefield surgical techniques, and defensive clothing. For example, in 2008 the United States Defense Advanced Research Projects Agency used live pigs to study the effects of improvised explosive device explosions on internal organs, especially the brain.

There are efforts in many countries to find alternatives to using animals in education. Horst Spielmann, German director of the Central Office for Collecting and Assessing Alternatives to Animal Experimentation, while describing Germany's progress in this area, told German broadcaster ARD in 2005: "Using animals in teaching curricula is already superfluous. In many countries, one can become a doctor, vet or biologist without ever having performed an experiment on an animal."

Ethics

Background

Monument for animals used in testing at Keio University

The ethical questions raised by performing experiments on animals are subject to much debate, and viewpoints have shifted significantly over the 20th century. There remain disagreements about which procedures are useful for which purposes, as well as disagreements over which ethical principles apply to which species. The dominant ethical position worldwide is that achievement of scientific and medical goals using animal testing is desirable, so long as animal suffering and use is minimized. The British government has additionally required that the cost to animals in an experiment be

weighed against the gain in knowledge. Some medical schools and agencies in China, Japan, and South Korea have built cenotaphs for killed animals. In Japan there are also annual memorial services (*Ireisai* 慰霊祭) for animals sacrificed at medical school.

A wide range of minority viewpoints exist. The view that animals have moral rights (animal rights) is a philosophical position proposed by Tom Regan, among others, who argues that animals are beings with beliefs and desires, and as such are the "subjects of a life" with moral value and therefore moral rights. Regan still sees ethical differences between killing human and non-human animals, and argues that to save the former it is permissible to kill the latter. Others, such as Bernard Rollin, argue that benefits to human beings cannot outweigh animal suffering, and that human beings have no moral right to use an animal in ways that do not benefit that individual. Another prominent position is that of philosopher Peter Singer, who argues that there are no grounds to include a being's species in considerations of whether their suffering is important in utilitarian moral considerations.

Although these arguments have not been widely accepted, governments such as the Netherlands and New Zealand have responded to the concerns by outlawing invasive experiments on certain classes of non-human primates, particularly the great apes.

Prominent cases

Various specific cases of animal testing have drawn attention, including both instances of beneficial scientific research, and instances of alleged ethical violations by those performing the tests.

Muscle physiology

The fundamental properties of muscle physiology were determined with on work done using frog muscles (including the force generating mechanism of all muscle, the length-tension relationship, and the force-velocity curve), and frogs are still the preferred model organism due to the long survival of muscles in vitro and the possibility of isolating intact single-fiber preparations (not possible in other organisms). Modern physical therapy and the understanding and treatment of muscular disorders is based on this work and subsequent work in mice (often engineered to express disease states such as muscular dystrophy).

University of California, Riverside

1985 was a pivotal year in the debate about animal research in the United States, with the enactment of amendments to the Animal Welfare Act. Britches, a macaque monkey, was born that year inside the University of California, Riverside, removed from his mother at birth, and left alone with his eyelids sewn shut, and a sonar sensor on his head, as part of an experiment to test sensory substitution devices for blind people. The Animal Liberation Front raided the laboratory on April 20, 1985, removing Britches and 466 other animals, and reportedly inflicting $700,000-worth of damage to equipment. A

spokesman for the university said the allegations of mistreatment were false, and that the raid caused long-term damage to its research projects. The National Institutes of Health conducted an eight-month investigation and concluded that no corrective action was necessary.

Huntingdon Life Sciences

Huntingdon Life Sciences showed staff mistreating beagles.

In 1997, People for the Ethical Treatment of Animals filmed staff inside Huntingdon Life Sciences (HLS) in the UK, Europe's largest animal-testing facility, hitting puppies, shouting at them, and simulating sex acts while taking blood samples. The company said the employees were dismissed. Two pleaded guilty to "cruelly terrifying dogs," and were given community service orders and ordered to pay £250 costs, the first lab technicians to have been prosecuted for animal cruelty in the UK. The broadcast of the video on Britain's Channel 4 Television in March 1997 triggered the formation of Stop Huntingdon Animal Cruelty (SHAC), an international leaderless resistance campaign to close HLS, which has been criticized for its sometimes violent tactics. In January 2009, several British SHAC activists were jailed for blackmailing companies linked to HLS.

Roslin Institute

Dolly the sheep: the first clone produced from an adult animal

In February 1997 a team at the Roslin Institute in Scotland announced the birth of Dolly the sheep, a ewe that had been cloned from tissue taken from another adult sheep. Dolly was produced through nuclear transfer to an unfertilised oocyte, and was the only lamb that survived from 277 attempts at this technique. Dolly appeared to be a normal sheep, living for six years and giving birth to several lambs, but was euthanized in 2003 after contracting a progressive lung disease. Although the production of Dolly was a scientific breakthrough, it was controversial, since it showed that not only could cloned animals be produced for use in farming, but also that it would now be, in principle, possible to clone a human being.

University of Cambridge

A marmoset after being brain damaged, filmed at Cambridge by the BUAV

The British Union for the Abolition of Vivisection (BUAV) raised concerns about primate experiments at the University of Cambridge in 2002. In a series of court cases, the BUAV alleged that monkeys had undergone surgery to induce a stroke, and were left alone after the procedure for 15 hours overnight. Researchers had trained the monkeys to perform certain tasks before inflicting brain damage and re-testing them. The monkeys were only given food and water for two hours a day, to encourage them to perform the tasks. The judge hearing BUAV's application for a judicial review rejected the allegation that the Home Secretary had been negligent in granting the university a license. The British government's chief inspector of animals conducted a review of the facilities and experiments. It concluded the veterinary input at Cambridge was "exemplary"; the facility "seems adequately staffed"; and the animals afforded "appropriate standards of accommodation and care."

Columbia University

CNN reported in October 2003 that Catherine Dell'Orto, a veterinarian at Columbia University, had approached the university's Institute of Comparative Medicine about the treatment of baboons who were undergoing surgery as part of an experiment into stroke treatment. She said the baboons, who were in some cases having an eyeball removed, were left to suffer in their cages after the surgery. She alleged there was systemic maltreatment, poor record-keeping, and other violations of regulations, according to CNN. She presented her evidence in October 2002 and, dissatisfied with the response, contacted People for the Ethical Treatment of Animals two months later.

In March 2003, a lab technician shot video inside the lab, which according to *The New York Daily News* showed primates in cages without pain medication; the video included one baboon with a metal cylinder screwed into its head, according to the newspaper. Dell'Orto told the newspaper that primates were often not euthanized or given painkillers after surgery; she said other primates had torn their fingers off out of fear. The U.S. Department of Agriculture upheld Dell'Orto's complaint that there was shoddy record-keeping, and that 11 animals had been provided with "inadequate or questionable care." They found no evidence that the experiments violated federal guidelines or that there had been retaliation against Dell'Orto. CNN reported that Columbia responded by ordering better record-keeping, a review of the veterinary care program, and tighter criteria for euthanasia of laboratory animals.

Covance

In 2004, German journalist Friedrich Mülln shot undercover footage of staff in Covance, Münster, Europe's largest primate-testing center, making monkeys dance in time to blaring pop music, handling them roughly, and screaming at them. The monkeys were kept isolated in small wire cages with little or no natural light, no environmental enrichment, and high noise levels from staff shouting and playing the radio. Primatologist Jane Goodall described the living conditions of the monkeys as horrendous. Another primatologist, Stephen Brend, told BUAV that using monkeys in such a stressed state is bad science, and trying to extrapolate useful data in such circumstances is what he called

an untenable proposition. In 2004 and 2005, PETA shot footage inside the company in the United States. According to *The Washington Post*, PETA said an employee of the group filmed primates being choked, hit, and denied medical attention when badly injured. The U.S. Department of Agriculture fined Covance $8,720 for 16 citations, three of which involved lab monkeys; the other citations involved administrative issues and equipment.

Threats to researchers

In 2006, a primate researcher at the University of California, Los Angeles (UCLA) shut down the experiments in his lab after threats from animal rights activists. The researcher had received a grant to use 30 macaque monkeys for vision experiments; each monkey was anesthetized for a single physiological experiment lasting up to 120 hours, and then euthanized. The researcher's name, phone number, and address were posted on the website of the Primate Freedom Project. Demonstrations were held in front of his home. A Molotov cocktail was placed on the porch of what was believed to be the home of another UCLA primate researcher; instead, it was accidentally left on the porch of an elderly woman unrelated to the university. The Animal Liberation Front claimed responsibility for the attack. As a result of the campaign, the researcher sent an email to the Primate Freedom Project stating "you win," and "please don't bother my family anymore." In another incident at UCLA in June 2007, the Animal Liberation Brigade placed a bomb under the car of a UCLA children's ophthalmologist who experiments on cats and rhesus monkeys; the bomb had a faulty fuse and did not detonate. UCLA is now refusing Freedom of Information Act requests for animal medical records.

These attacks, as well as similar incidents that caused the Southern Poverty Law Center to declare in 2002 that the animal rights movement had "clearly taken a turn toward the more extreme," this prompted the US government to pass the Animal Enterprise Terrorism Act and the UK government to add the offense of "Intimidation of persons connected with animal research organisation" to the Serious Organised Crime and Police Act 2005. Such legislation, and the arrest and imprisonment of extremists may have decreased the incidence of attacks.

Alternatives to animal testing

Scientists and governments state that animal testing should cause as little suffering to animals as possible, and that animal tests should only be performed where necessary. The "three Rs" are guiding principles for the use of animals in research in most countries:

1. **Replacement** refers to the preferred use of non-animal methods over animal methods whenever it is possible to achieve the same scientific aim.
2. **Reduction** refers to methods that enable researchers to obtain comparable levels of information from fewer animals, or to obtain more information from the same number of animals.
3. **Refinement** refers to methods that alleviate or minimize potential pain, suffering or distress, and enhance animal welfare for the animals still used.

Although such principles have been welcomed as a step forwards by some animal welfare groups, they have also been criticized as both outdated by current research, and of little practical effect in improving animal welfare.

Chapter 8

Animal Psychopathology

Animal psychopathology is the study of mental or behavioral disorders in non-human animals.

Historically, there has been an anthropocentric tendency to emphasize the study of animal psychopathologies as models for human mental illnesses. But animal psychopathologies can, from an evolutionary point of view, be more properly regarded as non-adaptive behaviors due to some sort of a cognitive disability, emotional impairment or distress.

Eating disorders

Animals in the wild appear to be relatively free from eating disorders although their body composition fluctuates depending on seasonal and reproductive cycles. However, domesticated animals including farm, laboratory and pet animals are prone to disorders. Evolutionary fitness drives feeding behavior in wild animals. The expectation is that farm animals also display this behavior, but questions arise if the same principles apply to laboratory and pet animals.

Activity anorexia

Activity Anorexia (AA) is a condition where rats begin to exercise excessively while simultaneously cutting down on their food intake, similar to human anorexia nervosa. When given free access to food and an exercise wheel rats develop a balance routine between exercise and food intake turning them into fit rats. However, if food intake is restricted and wheel access is unrestricted rats begin to exercise more and eat less resulting in excessive weight loss and ultimately death. The running cycles shift so that most of the running is done in hours before feeding is scheduled. In other conditions AA does not develop. Unrestricted food access and restricted wheel access will not cause any significant change in either feeding or exercise routine. Also if rats are restricted both in food intake and wheel access they will adjust accordingly. In fact if rats are first trained to the feeding schedule and then given unrestricted access to a running wheel they will not develop AA behavior. Results support that the running interfered with the adaptation to the new feeding schedule and is associated with the reward system in the brain. One

theory is that running simulates foraging, a natural behavior in wild rats. Laboratory rats therefore run (forage) more in response to food shortages. The effect of semi-starvation on activity has also been studied in primates. Rhesus monkey males become hyperactive in response to long-term chronic food restriction.

Thin sow syndrome

Thin Sow Syndrome(TSS) is a behavior observed in stalled sows that is similar to AA where some sows after early pregnancy are extremely active, eat little and waste away resulting very often in death. They suffer from emaciation, hypothermia, a depraved appetite, restlessness and over-activity. The syndrome may mainly be related to social and environmental stressors. Studies on the effects of overcrowding were pioneered by John B. Calhoun in the 1940s by placing Norway pregnant rats in a room with plenty of water and food and observing the population growth. The population reached a number of individuals and did not grow after; overcrowding produced stress and psychopathologies. Even though there was plenty of water and food the rats stop eating and stop reproducing. These effects have also been observed in jam-packed beetles. When overcrowding occurs female beetles destroy their eggs and turn cannibalistic, eating each other. Male beetles lose interest in the females and although there is plenty of water and food there is no population growth. Similar effects have been observed in overcrowded situations in jack rabbits in Minnesota, and deer in the Chesapeake Bay. Stress in stalled sows is often perceived as the consequence of the restraint of animals that happens in intensive production units. The sows that suffer the most restraining conditions are those lactating or pregnant as they have very little room to move around because they are kept in barred gestation crates or tethered for the 16 weeks of pregnancy which prevents natural and social behaviors. However, increased movement and freedom is also stressful for adult sows, which is usually the case after weaning. When placed into groups they fight vigorously with one dominant sow emerging that eats greedily and becomes large and fat. It is also very likely that two subservient sows make up part of the group who actively avoid competitive feeding situations and are bullied around by the dominant sow. Affected sows have poor appetite but often show PICA and excessive water intake and are anemic.

Pica

Pica is the ingestion of nonnutritive substances and has so far been poorly documented. In non-human animals in the laboratory it has been examined through the ingestion of kaolin (a clay mineral) by rats. Rats were induced to intake kaolin by administering various emetic stimuli such as copper sulfate, apomorphine, cisplatin, and motion. Rats are unable to vomit when they ingest a substance that is harmful thus pica in rats is analogous to vomiting in other species; it is a way for rats to relieve digestive distress. In some animals pica seems to be an adaptive trait but in others it seems to be a true psychopathology like in the case of some chickens. Chickens can display a type of pica when they are feed-deprived (feeding restriction has been adopted by the egg industry to induce molting). They increase their non-nutritive pecking, such as pecking structural features of their environment like wood or wire on fences or the feathers of other birds. It

is a typical response that occurs when feeding is restricted or is completely withdrawn. Some of the non-nutritive pecking may be due to a redirection of foraging related behavior. Another animal that has displayed a more complex pica example are cattle. Cattle eat bones when they have a phosphorus deficiency. However, in some cases they persist on eating bones even after their phosphorus levels have stabilized and they are getting adequate doses of phosphorus in their diet. In this case evidence supports both a physical and psychological adaptive response. Cattle that continue to eat bones after their phosphorus levels are adequate do it because of a psychological reinforcer. "The persistence of pica in the seeming absence of a physiological cause might be due to the fortuitous acquisition of a conditioned illness during the period of physiological insult."

Cats also display pica behavior in their natural environments and there is evidence to support that this behavior has a psychological aspect to it. Some breeds (such as the Siamese cat) are more predisposed to showing this type of behavior than other breeds, but several types of breeds have been documented to show pica. Cats have been observed to start by chewing and sucking on non-nutritive substances like wool, cotton, rubber, plastic and even cardboard and then progress into ingestion of these substances. This type of behavior occurs through the first four years of a cat's life but it is primarily observed during the first two months of life when cats are introduced into new homes is most common. Theories explaining why this behavior becomes active during this time suggest that early weaning and stress as a consequence of separation from the mother and littermates and exposure to a new environment are to blame. Eating wool or other substances may be a soothing mechanism that cats develops to cope with the changes. pica is also observed predominately during 6–8 months of a cat's life when territorial and sexual behaviors emerge. pica may be induced by these social stressors. Other theories contemplated include pica as a redirection of prey-catching/ ingestion behavior as a result of indoor confinement, especially common among oriental breeds due to risk of theft. In natural environments pica has been observed in Parrots, Macaws and other birds and mammals. Charles Munn has been studying Amazon Macaws lick clay from riverbeds in the Amazon to detoxify the seeds they eat. Amazon Macaws spend two to three hours a day licking clay. Munn has found that clay helps counter the tannin and alkaloid in the seeds the Macaws ingest, a strategy that is also used by Indians in the Andes Mountains in Peru.

pica also affects domesticated animals. While drugs like Prozac are often able to diminish troublesome behaviors in pet dogs, they don't seem to help with this eating disorder. The following story about Bumbley, a wirehaired fox terrier who appeared on 20/20 as a result of his eating disorder, is taken from a book by Dr. Nicholas Dodman.

"*This dog's presenting problem was light chasing (otherwise known as shadow chasing). It chased shadows for hours on end, even excavating through plasterboard walls to pursue its will-o'-the-wisp illusions...The one thing that didn't come across clearly in the show was that Bumbley ate everything in sight and the house had to be "Bumbley-proofed" against his relentless ingestion of anything his owners left around...He had already had surgery to relieve intestinal obstructions resulting from his habit and, each*

day, his owners reentered their house with trepidation after work, fearing that Bumbley might have eaten something else."

Dodman talks about new research relating bulimia and compulsive eating to seizural behavior in human patients. He suggests that antiepileptic medication might be a possible treatment for some cases of pica in animals.

Behavioral disorders

Behavioral Disorders are difficult to study in animal models because it is difficult to know what animals are thinking and because animal models used to asses psychopathologies are experimental preparations developed to study a condition. Can a monkey effectively communicate that he is sad or that he feels overwhelmed? Lacking the ability to use language to study behavioral disorders like depression and stress questions the validity of those studies conducted. It can be difficult to attribute human afflictions to non-human animals.

Obsessive compulsive disorder (OCD)

Compulsive behavior in animals can be defined as a specific, unnecessary action or series of actions that is repeated more often than would normally be expected. Obsessive thoughts are more difficult to identify in non-human animals. They are unreasonable and intrusive, and unpleasant and often express themselves as compulsive behavior.

A wide variety of animals exhibit behaviors that can be considered compulsive. While obsessive-compulsive disorder (OCD) in humans is perhaps the most common example of such behaviors in scientific and popular literature, it is important to consider similar phenomenon in other species. In a more anthropocentric sense, study of obsession and compulsion in other species may help us to understand the processes and explanations behind obsessive-compulsive disorder and behaviors in humans.

Ritualized and stereotyped behaviors

Though obsessive-compulsive behaviors are often thought of as pathological, as in the case of OCD, or maladaptive in other animals, ritualized and stereotyped behaviors are often beneficial. These behaviors merit consideration because of the characteristics they share with obsessive-compulsive behavior, including a high degree of similarity in form and use among many individuals and a repetitive dimension.

There are many observable animal behaviors with characteristic, highly-conserved patterns. One example is grooming behavior in rats. This behavior is defined by a specific sequence of actions that does not normally differ between individual rats. The rat first begins by stroking its whiskers, then expands the stroking motion to include the eyes and the ears, and finally moving on to lick both sides of its body. Other behaviors may be added to the end of this chain, but these four actions themselves are fixed. Its ubiquity

and high degree of stereotypy suggest that this is a beneficial behavior pattern which has been maintained throughout evolutionary history.

Pathological stereotyped behaviors also exist in animals, but they do not necessarily provide a similar model to OCD in humans. Feather picking in orange-winged Amazon parrots has both a genetic component, with the behavior being more likely in one sibling if the other does it, and more common in parrots close to a door when they were housed in groups. The same study found that feather picking was more common in females and that there was no social transmission of the behavior; neighbors of feather picking birds were only more likely to show the behavior as well if they were related.

An evolutionary basis

Some researchers believe that disadvantageous obsessive compulsive behaviors can be thought of as a normally beneficial process gone too far. Brüne (2006) suggests that changes of various origin in striatal and frontal brain circuits, which play a role in predicting needs and threats that may arise in the future, may result in a hyperactive cognitive harm avoidance system, in which a person becomes consciously and unreasonably fearful of an unlikely or impossible event. This may also be true in other animals.

Animal models of OCD

Animals exhibiting obsessive and compulsive behaviors that resemble OCD in humans have been used as a tool for elucidating possible genetic influences on the disease, potential treatments, and to better understand the pathology of this behavior in general. While such models are useful, they are also limited; it is unclear whether the behavior is ego dystonic in animals. That is, it is difficult to evaluate whether an animal is aware that its behavior is excessive and unreasonable and whether this awareness is a source of anxiety.

Some examples of ways in which rats and mice, two of the most common animal models, have been used to represent human OCD are provided below.

Lever pressing in rats

Certain laboratory rat strains that have been created by controlled breeding for many generations show a higher tendency towards compulsive behaviors than other strains. Lewis rats show more compulsive lever pressing behavior than Sprague Dawley or Wistar rats and are less responsive to the anti-compulsive drug paroxetine. In this study, rats were taught to press a lever to receive food in an operant conditioning task. Once food was no longer provided when they pressed the lever, rats were expected to stop pressing it. Lewis rats pressed the lever more often than the other two types, even though they had presumably learned that they would not receive food, and continued to press it more often even after treatment with the drug. An analysis of the genetic differences

between the three rat strains might help to identify genes that might be responsible for the compulsive behavior.

Rats have also been used to test the possibility of a problem with dopamine levels in the brains of animals that exhibit compulsive checking behavior. After treating rats with quinpirole, a chemical that specifically blocks dopamine D2/D3 receptors, compulsive checking of certain locations in an open field increased. Some components of the checking behavior, such as the level of stereotypy in the path animals took to checked locations, the number of checks, and the length of the checks indicated and increase in compulsivity as doses of quinpirole increased; other components, such as the time taken to return from the checked location to the starting point and the time taken to make that trip remained constant after the initial injection throughout the experiment. This means that there might be both all-or-none and a sensitization aspects in the biology of the dopamine deficiency model of OCD. In addition, quinpirole might reduce a sense of satisfaction in the rats after they check a location, causing them to return to that location again and again.

Estrogen deficiency in male mice

Based on findings of changes in OCD symptoms in menstruating women and differences in the development of the disease between men and women, Hill and colleagues set out to research the effect of estrogen deprivation on the development of compulsive behavior in mice. Male mice with an aromatase Gene knockout who were unable to produce estrogen showed excessive grooming and wheel running behaviors, but female mice did not. When treated with 17β-estradiol, which replaced estrogen in these mice, the behaviors disappeared. This study also found that COMT protein levels decreased in mice that did not produce estrogen and increased in the hypothalamus after estrogen-replacement treatment. Briefly, the COMT protein is involved in degrading some neurotransmitters, including dopamine, norepinephrine and epinephrine. This data suggests that there may be a hormonal component and a hormone-gene interaction effect that may contribute to obsessive behaviors.

Pets

Dr. Nicholas Dodman describes a wide variety of OCD-like behaviors in his book Dogs Behaving Badly. Such behaviors typically appear when the dog is placed in a stressful situation, including an environment that is not very stimulating or a history of abuse. Different breeds of dog seem to display different compulsions. Lick granuloma, or licking repeatedly until ulcers form on the skin, affects more large dogs, like Labradors, golden retrievers, Great Danes, and Dobermans, while bull terriers, German shepherds, Old English sheepdogs, Rottweilers, wirehaired fox terriers, and springer spaniels are more likely to snap at imaginary flies or chase light and shadows. These associations probably have an evolutionary basis, although Dodman does not clearly explain that aspect of the behaviors. Dodman advocates the use of exercised, an enriched environment (like providing noises for dogs to listen to while owners are at work), and often Prozac (an SSRI used to treat OCD in humans) as treatments.

Dodman includes a story about Hogan, a castrated deaf male Dalmatian, and his compulsive behavior. Hogan had a history of neglect and abuse before he was adopted by Connie and Jim, who attempted to improve his behavior by teaching him to respond to American Sign Language. The following are some excerpts from Hogan's file.

"*All was well for a year and a half when suddenly, one March morning, he woke up and started pawing everything in sight, and just wouldn't stop. He pawed rugs and blankets, hardwood floors and linoleum, grass and dirt surfaces...The similarity between what he was doing and prey-seeking behavior was remarkable.*"
"*I do believe...that Hogan was under some kind of psychological pressure at the time the compulsive pawing behavior developed... Connie and Jim were compelled to leave him for some eight hours a day while they went to work...The pendulum was set and ready to swing. The actual compulsion that develops under such circumstances is less relevant than the fact that one 'does' develop."*
"*The "three R's" of rehabilitation are exercise, nutrition, and communication. First, I advised Connie to step up Hogan's exercise to a minimum of thirty minutes of aerobic activity a day. In addition, I advised that Hogan should be fed a low-protein, preservative-free diet. Completing the rehabilitation checklist, I exhorted Connie to work even harder with the sign-language and instructed her on a new sign to use when Hogan started digging. The sign was a piece of card with the letter 'H' written on it in thick black pen. Connie was to show Hogan this sign as soon as possible after he engaged in a bout of unwanted pawing and then leave the room. The idea was to let him know that the behavior was not wanted by signaling to him that Connie was about to leave the room...Call me a coward, but I didn't think that alone would cut it because of previous experiences with canine compulsive disorders so, employing a belt-and-suspenders strategy, I also advised medicating Hogan with the tricyclic antidepressant Elavil. Theoretically, Elavil wouldn't be that good in obsessive-compulsive behavior but, limited for reasons of expense, and bearing in mind the possible contribution of separation anxiety, Elavil was my best shot.*"
"*It took six months before Hogan was over the hump of treatment success...At this time Hogan only engaged in occasional pawing of significantly reduced intensity, and the pawing only occurred in moments of stress. Connie reported that stresses particularly likely to induce pawing included being unable to find her and sensing that he was about to be left alone...Hogan continued to improve and reached a point at which he was almost pawing-free - but not quite. That seems to be the way with compulsive disorders in man and beast. They can be reduced to the level of permitting affectees to lead relatively normal lives, but there are occasional relapses.*"

Addiction

Sugar addiction has been examined in laboratory rats and it develops in the same way that drug addiction develops. Eating sugary foods causes the brain to release natural chemicals called opioids and dopamine in the limbic system. Tasty food can activate opioid receptors in the ventral tegmental area and thereby stimulate cells that release dopamine in the nucleus accumbens (NAc). The brain recognizes the intense pleasure derived from the dopamine and opioids release and learns to crave more sugar.

Dependence is created through these natural rewards, the sugary treats, and the opioid and dopamine released into the synapses of the mesolimbic system. The hippocampus, the insula and the caudate activate when rats crave sugar, which are the same areas that become active when drug addicts crave the drug. Sugar is good because its provides energy but when the body becomes dependent on the sugar intake and the nervous system goes through a change somatic signs of withdrawal begin to appear like chattering teeth, forepaw tremors and head shakes when sugar is not ingested. Morphine tolerance, a measure of addiction, was observed in rats and their tolerance on Morphine was attributed to environmental cues and the systemic effects of the drug. Morphine tolerance does not depend merely on the frequency of pharmacological stimulation, but rather on both the number of pairings of a drug-predictive cue with the systemic effects of the drug. Rats became significantly more tolerant to morphine when they had been exposed to a paired administration than those rats that were not administered morphine along with a drug-predictive cue.

Depression

Using dogs Martin Seligman and his colleagues pioneered the study of depression in the animal model of learned helplessness at the University of Pennsylvania. Dogs were separated into three groups, the control group, group A had control over when they were being shocked and group B had no control over when they were being shocked. After the shocking condition the dogs were tested in a shuttle box where they could escape shock by jumping over a partition. To eliminate an interference effect- that the dogs did not learn responses while being shocked that would interfere with their normal escape behavior- the dogs were immobilized using curare, a paralyzing drug while they were being shocked. Both the control group and group A tended to jump over the partition to escape shock while group B dogs did not jump and would passively take the shock. The dogs in group B perceived that the outcome was not related to their efforts. Consequently a theory emerged that attributed the behavior of the animals to the effects of the shock as a stressor so extreme that it depleted a neurochemical needed by the animals for movement. After the dogs study the effects of helplessness have been tested in species from fish to cats. Most recently learned helplessness has been studied in Rhesus Macaques using inescapable shock, evoked through stress situations like forced swimming, behavioral despair tasks, tails suspension and pinch induced catalepsy; situations that render the monkey incapable of controlling the environment.

Depression and low mood were found to be of a communicative nature. They signal yielding in a hierarchy conflict or a need for help. Low mood or extreme low mood (depression) can regulate a pattern of engagement and foster disengagement from unattainable goals. "Low mood increases an organism's ability to cope with the adaptive challenges characteristic of unpropitious situations in which effort to pursue a major goal will likely result in danger, loss, bodily damage, or wasted effort." Being apathetic can have a fitness advantage for the organism. Depression has also been studied as a behavioral strategy used by vertebrates to increase their personal or inclusive fitness in the threat of parasites and pathogens.

The lack of neurogenesis has been linked to depression. Animals with stress (isolated, cortisol levels) show a decrease in neurogenesis and antidepressants have been discovered to promote neurogenesis. Rene Hen and his colleagues at Columbia University ran a study on rats in which they blocked neurogenesis by applying radiation to the hippocampal area to test the efficacy of antidepressants. Results suggested that antidepressants failed to work when neurogenesis was inhibited.

Stress

Sapolsky has extensively studied baboons in their natural environment in the Serengeti in Africa. He noticed that baboons have very similar hierarchies in their society as do humans. They spend very few hours searching for food and fulfilling their primary needs leaving them with time to develop their social network. In primates mental stresses show up in the body. Primates experience psychological stresses that can elicit physiological responses that overtime can make them sick. Sapolsky observed the baboon's ranks, personalities and social affiliations then collected blood samples of the baboons to control the cortisol (stress hormone) levels of the baboons then matched social position to cortisol levels. Most of the data have been collected from male baboons because at any given time 80 percent of the females were pregnant. Three factors influenced a baboon's cortisol levels; friendships, perspective and rank. Baboons that played with infants and cultivated friendships, could tell if a situation was a real threat and could tell if they were going to win or loose, and were top ranking had lower levels of Cortisol. Cortisol levels rise with age and hippocampal cells express fewer hormone receptors on their surface to protect themselves from excess, making it harder to control stress levels. Cortisol levels are elevated in half of people suffering from major depression, it is the hippocampal region that is affected by both. Stress can have negative effects on gastrointestinal function causing ulcers, and it can also decrease sex drive, effect sleeping patterns and elevate blood pressure but it can also stimulate and motivate. When animals experience stress they are generally more alert than when they are not stressed. It may help them be better aware of unfamiliar environments and possible threats to their life in these environments. Yerkes and Dodson developed a law that explains the empirical relationship between arousal and performance illustrated by and inverted U-shape graph. According to the Yerkes-Dodson Law performance increases as does cognitive arousal but only to a certain point. The downward part of the U-shape is caused by stress and as stress increases so does efficiency and performance but to a certain point. When stress becomes too great performance and efficiency decline. Sapolsky has also studied stress in rats and his results indicate that early experiences in young rats have strong, lasting effects. Rats that were exposed to human handling (stressful situation) had finely tuned stress responses that may have lowered their lifetime exposure to stress hormones compared to those that were not handled. In short stress can be adaptive. The more exposure to stressful situations the better the rat can handle that situation.

An example of extreme stress would be Gina, a German Shepherd Dog that was diagnosed with posttraumatic stress disorder after spending six months as a military working dog in the Iraq War.

Stereotypies

Stereotypies are repetitive, sometimes abnormal behaviors like pacing on the perch for birds. There are adaptive stereotypic behaviors such as grooming in cats and preening in birds. Captive parrots commonly perform a range of stereotypies. These behaviors are repeated identically and lack any function or goal. Captive parrots perform striking oral and locomotor stereotypies like pacing on the perch or repetitive play with a certain toy. Feather picking and loud vocalizations can be stereotypies but are not as rigid and may be reactions to confinement, stress, boredom and loneliness as studies have shown that parrots that are in cages closest to the door are the most prone to feather pick or scream. Feather picking is not a true stereotypy and is more like hair pulling in human and loud vocalizations or screaming can be a stereotypy but vocalization is part of a parrot's natural behavior. Captive parrots lack sufficient stimulation. Presumably they suffer from lack of companionship and opportunities to forage. Stereotypies can evolve from the social environment for example the presence or absence of certain social stimuli, social isolation, low feeder space and high stocking density (especially for tail biting in pigs). These behaviors can also be transmitted through social learning, bank voles, pigeons and pigs when housed next to animals that show stereotypies, pick them up as well as through stimulus enhancement which is what happens in tail biting in pigs and feather pecking by hens.

Stereotypies may be coping mechanisms as results suggest from study on tethered and stalled sows. Sows that are tethered and stalled exhibited more stereotypies like licking and rubbing than sows that are in groups outdoors. This abnormal behavior seems to be related to opioid (related to the reward system) receptor density. In sows, prolonged confinement, being tethered or being in gestations crates, results in abnormal behaviors and stereotypies. Mu and Kappa receptors are associated with aversion behaviors and Mu receptor density is greater in tethered sows than sows that are in groups outdoors. However, sows with stereotypy behaviors experienced a decrease both in Mu and Kappa receptor density in the brain suggesting that inactivity increases Mu receptor density and stereotypy development decrease both kappa and Mu receptor density.

Self-injury

Rhesus Monkeys have been observed to display self-aggression (SA) including self-biting, self-clasping, self-slapping, self-rubbing and threatening of body parts. The rhesus monkeys observed were individually caged and free of disease. Their self-aggression level rose in stressful and stimulating conditions like moving from one cage to another. Stumptailed Macaques were studied to examine the source of their SA. SA increased in an impoverished environment and results support that SA may increase sensory input in poor environments. Captive Macaques do not socialize the way wild Macaques do which may affect SA. When allowed to socialize by putting another macaque in the cage or not putting them in a cage, SA levels in macaques decrease. Results indicate that SA is a form of redirected Social Aggression. SA is related to frustration and social status especially in Macaques that have an intermediate dominance rank.