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Scientists and Animal Research: Dr. Jekyll or Mr. Hyde?

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BY ANDREW N. ROWAN

Introduction

In the past two decades, bioscientists have been forced to confront an increasing variety of critics. Nevertheless, at the same time, scientists still belong to one of the most admired professions (Pion and Lipsey, 1981). In the USA, 88 percent of the public believe that the world is better off because of science and scientists are second only to medical doctors in public prestige (NSB, 1989). In the United Kingdom, the three most respected public institutions are medicine, the military, and scientists in that order (Kenward, 1989). Nonetheless, there is still an underlying level of public uneasiness about science and scientists.

One critical group that has grown tremendously in size and influence in the last twenty years is the animal protection movement. As in the nineteenth century, protests over the use of animals in research, testing, and education have touched a responsive chord among the general public. In fact, animal research has long been one of those "hot button" issues that has the capacity to stimulate impassioned opposition. While the level of opposition has waxed and waned over the past one hundred and fifty years, it currently stands at an all-time high. About 15–20 percent of the public would like to see all animal use in research and testing stopped immediately, while another

large segment are uneasy about the practice but are prepared to accept it because of its perceived benefits. By contrast, 85 percent of the public agree or strongly agree with the statement that it is acceptable to kill and eat animals. (See Table 1 for public attitudes to different uses of animals.)

Why is the public so sensitive about the use of a few tens of millions of animals in research when they do not object to killing hundreds of millions of pigs and cows and billions of chickens for our meat diet? Why is animal research considered so bad despite the public's high opinion of science (and scientists)? Perhaps it is the image of the scientist as an objective and *cold* individual who *deliberately inflicts harm* (pain, distress, or death) on his (the public image is usually male) *innocent animal victims* that arouses so much horror and concern. This paper does not address the accuracy of this image but rather intends to examine its psychic roots in modern society as well as some of the central themes that appear time and again in the debate. Such themes include cruelty, innocence, suffering, and human benefit.

A Historical Précis

The protest against animal research began in earnest in the second half of the nineteenth century (French, 1975). Some of the more important elements that gave support to the Victorian antivivisection movement were as follows.

First, the Darwinian revolution weakened claims about the uniqueness of human beings and blurred the absolute qualitative differences that had been considered to exist between humans and animals. This narrowing of the gap between humans and animals tended to support Utilitarian arguments that animal suffering was morally important.

Second, philosophical challenges to the dominance of humans over animals began to appear with greater frequency. In the eighteenth century, several clerics argued that animals should be

accorded a greater moral status, and then Jeremy Bentham, the Utilitarian, added his influential voice to the debate. He argued that animal suffering should be given significant weight in analyses of what is or is not moral. The ability to employ Reason as opposed to mere Sentiment to challenge the morality of animal research was as empowering to the Victorian antivivisectionists as it is to the animal rights movement today.

Third, the emerging public health movement (the sanitarians) promoted the development of better health and hygiene (for example, cleaning up public water supplies) as a more effective way of improving public health than animal research. They did not specifically oppose animal research, but neither did they support it very strongly.

Fourth, there were some in the medical establishment who were threatened by the new "scientific" medicine based on experimentation. For example, Claude Bernard, the French physician, who is sometimes characterized as the "father" of experimental medicine, was criticized not only by the public for his animal research (including his wife and daughters) but also by leading figures of the French medical establishment. The medical criticism was, however, based more on professional jealousy than on a concern for the animals.

Finally, some of the new Protestant religions tended to undermine claims regarding the uniqueness of human beings or the moral irrelevance of animals by arguing that both animals and humans possessed souls and that God was concerned about all of creation and not simply humans. For example, John Wesley specifically preached that animals had souls (a message ignored in modern Methodism), and many of the early campaigners for animal welfare were clerics in the Church of England (Stevenson, 1956).

The Scientific Image

While the role of biologists, philosophers, clerics, the aristocracy, and others was important in fueling concerns over

animal research, the public image of the research scientist was probably also an important factor in fueling public concerns. Towards the end of the nineteenth century, physicians had risen in status to the top rungs of society, having thrown off their earlier association with barbers and butchers. Physicians were no longer to be feared and were perceived to be caring, humanitarian professionals concerned with saving lives and alleviating suffering, often at some cost to themselves. By contrast, the researcher (whether a medical practitioner or not) was perceived by the public to be an unfeeling individual who deliberately and without feeling carried out his experiments.

Henry Salt, a close friend of George Bernard Shaw and an important figure in the Victorian animal "rights" movement, wrote a one act play entitled *A Lover of Animals* in 1895 that not only showed the influence of Shaw but also clearly articulated this dichotomy between physician and researcher. The play concerns the ambitions of Dr. Claud Kersterman, a thirty-five year old hospital surgeon who also does animal experiments. Dr. Kersterman hopes to persuade his wealthy aunt, Miss Moll, to set him up as the attending physician to her proposed Pet Convalescent Home and eventually to inherit her estate. However, he must ensure that his servant, Pate, a deformed half-wit, does not inadvertently reveal his animal experimentation because his aunt, despite enjoying her meat and her furs, is a vehement antivivisectionist. His aunt's companion, Miss Grace Goodhart, learns of the research activities from Pate, which leads to the expected uproar.

Miss Goodhart is not an "animal lover" like Miss Moll, whose concern for animals is limited to the acts of foreigners and scientists but displays much more consistency in her attitudes and behavior. She not only is against animal research but also does not wear furs and is a vegetarian. She is unhappy about her employer's obvious hypocrisy and eventually says as much and is summarily dismissed by the aunt. However, Miss Goodhart is also called upon to express her opinion of vivisection which she does as follows: "I abominate Vivisection

as the most horrible of crimes—the more horrible because it is done, as Dr. Kersterman says, deliberately and conscientiously (we must grant him that), and not from mere thoughtlessness, like sport." In other words, it is the premeditated and calculated elements of animal research that aggravate the sensibilities and arouse so much horror.

Another and much better known example of this dichotomy is the Victorian novel of *Dr. Jekyll and Mr. Hyde* by Robert Louis Stevenson, which was published a few years before Salt's play (Stevenson, 1979). In the words of the editor of the Penguin version of the novel, "Jekyll is an apparently respectable man who contains within him a potential for profound wickedness, released in the shape of Mr Hyde. Symonds [Stevenson's friend A.J. Symonds] and many others found this chilling to contemplate" (Calder, 1979). For a significant segment of the public, whether or not they accept the need to use laboratory animals, the Jekyll and Hyde story reflects public perceptions about the dual nature of the animal research scientist. This duality appears time and again in surveys and analyses of public attitudes to science and scientists.

Public Attitudes toward Science and to Scientists

According to Haynes (1994), Western traditions were inimical to science prior to 1600 when the desire for knowledge (except theology) was perceived as dangerous and evil. This attitude is clearly reflected by the Faust legend in which the scientist, Dr. Faust, makes a pact with the devil to gain knowledge and power. Francis Bacon changed public attitudes to the search for knowledge by arguing that scientists were simply developing an understanding of God's laws, but, ever since, the vision of the scientist as a noble seeker after truth has had to vie with a range of more negative stereotypes. For the most part, literature and public attitudes appear to emphasize the baser aspects of scientific character, although

there have been relatively brief periods when public admiration for science and scientists has overcome public concern. For example, after Newton's death in 1727, he was the subject of considerable public adulation, and portrayals of medical researchers in the nineteenth century were often complimentary to the point of eulogy.

In the twentieth century, there have been periods of widespread public support for scientists, but mad and evil scientists have never entirely disappeared from view. They have been a staple of pulp fiction and, according to Haynes, "with the exception of the superficial characters of much science fiction, the dominant picture has been of scientists who recapitulate the unflattering stereotypes of earlier centuries—the evil scientist, the stupid scientist, the inhuman scientist . . ., the scientist who has lost control of his discovery . . . " (1994, p. 295).

During the period after the second World War, from the late 1940s through the 1950s, public support for science in the United States was very high. It was felt that federally funded science could surmount any problem the country or world could throw at it. The development of the polio vaccine was the clear example. However, beginning in the late 1960s and lasting throughout the 1970s , science was perceived by more and more of the public as part of the problem rather than as part of the solution. Problems arising from chemical pollution, the destruction of the rain forests, and nuclear power have tended to undermine the public's confidence in science. More media attention, that displayed both the human fallibility of scientists as well as their accomplishments, left the public less confident in the pronouncements of science.

There is a tendency to view the 1950s, when science and scientists enjoyed great prestige, as the norm and the current drop in public approval as an unfortunate trend that must be reversed. However, Haynes' analysis (1994) indicates that public attitudes, as reflected in literary figures, were more usually negative and suspicious than supportive. Allen (1993)

also argues that the positive public attitudes in the 1950s were anomalous, and that the public is usually much more ambivalent about the activities of scientists.

He identifies two main images of scientists in American thought which he categorizes as Reformers (Mechanics) and as Wizards (Megalomaniacs). For example, some of the scientists who appear in works by Hawthorne, Poe, and Melville (for example, Captain Ahab) represent classic examples of the scientist as Wizard (or less flatteringly as Megalomaniac). The Wizard is usually not connected to the community or to his family (if he has one) and is perceived to be elitist. He is very capable but is unconstrained by moral scruples in his search to control or uncover some powerful secret of Nature.

The Reformer/Mechanic (scientist/engineer) is, by contrast, basically a benign character, rooted in the community (that is, democratic and upholding family values). He has some humorous characteristics (for example, absent-mindedness) but is also skilled and well-intentioned. Edison is a classic example of such a Reformer or Mechanic. The Wizard (scientist/theoretician) is anything but benign or humorous.

While Reformers and Wizards appear periodically throughout the development of American literature and the media, Allen notes that the Wizard disappeared for a time during and after the second World War. For example, in science fiction from 1937 to 1950, scientists were portrayed as heroic figures who worked with the military (the Warriors) to preserve civilization. However, in 1951, the Wizard began to reappear as exemplified by Dr. Carrington in the 1951 film, *The Thing—From Another World.*

The perception of scientists' personalities by the public has changed accordingly over the past forty years, but it has always been stereotypical and somewhat distorted. In surveys from the late 1950s, scientists were seen as intellectual and dedicated but difficult to comprehend and erratic in interpersonal relationships. A 1975 survey reported that they were seen as remote, withdrawn, secretive, unpopular, and single-minded

souls (Pion and Lipsey, 1981). Other surveys identify qualities such as rationality, objectivity, and coldness with scientists (Gerbner, 1987; Weart, 1988).

In modern times, television is the mirror that reflects society's hopes and fears and, presumably, reinforces public attitudes about whatever they are viewing. Gerbner (1987) has examined the images of scientists portrayed on television and reports that television images of scientists include many ambivalent and troublesome portrayals. Even though there are more positive than negative images of scientists in television (5:1 good to bad), by comparison to physicians (19:1 good to bad) and to law enforcement officials (40:1 good to bad), scientists were more often portrayed negatively.

Gerbner (1987) also reported that exposure to science and technology through television tends to cultivate a less favorable orientation toward science. Heavy television viewers were more negative about science and more likely to want to place restrictions on scientific activity. Among heavy television viewers, a college education had only a small positive effect on attitudes to science. Films also reflect this ambivalence toward both science and scientists. Such popular films as *Project X*, *Greystokes*, and *Splash* reinforce the image of the callous and unfeeling scientist mistreating the charges in his (usually) care. *Jurassic Park* is more of a warning about scientific hubris, while *The Fugitive* has a physician-*healer* winning his mortal combat with a physician-*experimenter*.

Public Attitudes toward Animal Research

Numerous polls of attitudes to animal research and testing have been conducted, and the findings can be summarized as follows: (a) About two-thirds to three-quarters of the American public are prepared to accept the need for animal research. (b) The percentage that actually *supports* animal research is usually about 10 percentage points lower. (c) About 10–15 percent of

the public actively oppose animal research. (d) The percentage opposing animal research changes depending on the type of animal used and the type of research (see table 2) (Anon, 1984; DDB, 1983; Gallup Organization, 1982; Gallup and Beckstead, 1988; NABR, 1985; NSB, 1989; 1993). Thus, most people support research that uses rats, but this figure may be halved if dogs are the research animal. Similarly, cancer research is considered very important by the public, but support drops off for alcohol and drug addiction research and product testing, especially of cosmetics and household goods. (e) So-called "basic" research does not receive as much public support as goal-oriented medical research. (f) About half the public is uncertain whether animal researchers treat their animals humanely. (g) It appears as though the public is becoming less tolerant of the use of animals in research. The biennial Science Indicators survey commissioned by the National Science Board in the United States has asked a question on animal research since 1985 (NSB, 1993). Survey participants were asked to express their level of agreement or disagreement with the following statement: "Scientists should be allowed to do research that causes pain and injury to animals like dogs and chimpanzees if it produces new information about human health problems." The level of agreement with this statement has dropped about ten percentage points (from 63 percent agreeing to 53 percent agreeing) from 1985 to 1992. (In the United Kingdom, where a similar question was also asked in 1988, only 35 percent of the public supported the statement.)

Scientific Attitudes toward Animal Research

In the highly polarized debate that characterizes the modern animal research controversy, it is usually assumed that scientists support animal research and animal activists criticize it, with the general public occupying some sort of contested middle ground. However, scientists are also demonstrably

ambivalent about what is done to animals in experimental laboratories.

Arluke (1988), Birke and Michael (1992), and Takooshian (1988) have conducted a variety of surveys of scientific attitudes to animal research which reveal more support for the practice than among the general public but still considerable concern. For example, Arluke (1988) reports considerable ambivalence about animal use among research scientists. In one letter he received after his findings were published, the writer notes: "I'm not really the type who usually writes letters to the editor. Nor do I belong to any animal rights groups or "researcher's rights" groups. My only agenda is to share with you the considerable guilt—not "stress" or "uneasiness" but GUILT I've experienced for the past fifteen years since working on rats as a premedical student."

Takooshian's (1988) survey revealed that the researchers were only marginally more supportive of animal use than the general public, while the strongest supporters were people who hunt and the clergy. Overall, the best correlation with animal research scores were the attitudes to animal protection rather than the attitudes toward science. Birke and Michael (1992) conducted a different type of attitude study in which they interviewed a relatively small sample of scientists in depth and reported that some said they could use rats but not cats or dogs, while others objected to the use of animals in household product testing. Their subjects recognized that they were being inconsistent in some cases but, nevertheless, followed their hearts rather than their heads.

These studies indicate that the modern animal researcher has far more in common with the Reformer who is connected to community mores rather than the Wizard who is not. However, the normal process of scientific communication is ideally stripped of any individuality, passion, and feeling. Therefore, written narratives in science are more likely to reinforce the public perception of science as wizardry.

Conclusion

In the modern animal research controversy, "many citizens have begun to judge science according to their own moral standards rather than accepting the measures of professional achievement that scientists apply to themselves" (Ritvo, 1984). The scientific community needs to understand what those moral standards are and recognize the ambivalent perception that the public has of science and scientists. There is a constant tug of war in the public mind between perceptions of the scientist as hero and as villain. For the most part, the scale of public attitudes is tilted toward the scientist as villain, especially when scientific discussion is couched in dispassionate and objective terminology.

This creates problems when scientists attempt to defend practices by arguing that they really do care about animals, patients, or some other compromised group or entity. The stereotypical dispassionate scientist is at a distinct disadvantage when he (or she) tries to convince an already suspicious public that they really do care about the animals they use. Nevertheless, recent research demonstrates that scientists who do animal research are almost as ambivalent about their use of animals as the general public. If scientists were freer in expressing their ambivalence about animal research, it would provide them with a firmer footing in the broader societal mores and make them less likely to be perceived as Wizards and more likely as Reformers. This should lead to a boost in public trust and a more favorable public image for both science and scientists.

TABLE 1. *Attitudes to different uses of animals—United States* (Parents Magazine, 1989). (Based on a randomly selected sample of 1009 American Adults)

Activity	Wrong: Should be illegal	Disapprove: but should *not be illegal*	Acceptable
Killing for Fur	63	22	13
Cosmetics Testing	58	23	13
Killing for Leather	46	23	27
Hunting for Sport	33	27	36
Medical Research	18	18	58
Animal Performances	16	16	63
Capture for Zoos	12	17	66
Killing for Food	5	7	85

TABLE 2. *Attitudes to the Use of Different Species in Medical Research* (NABR, 1985) (Percentage of Sample)

Species	Approve	Disapprove	Do Not Know
Rats	88	9	3
Rabbits	77	19	4
Monkeys	69	25	6
Cows	58	35	7
Dogs	55	40	5

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