

How animal protection groups are delaying the end of vivisection

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INTRODUCTION	1
THREE RS AND ALTERNATIVES.....	2
CAAT	3
FRAME	6
HSUS.....	10
FALSE HOPE.....	18
AFMA.....	20
REFERENCES	22

This essay is designed to be read after the essay [What is needed in order to end vivisection?](#) Both essays have been written for the animal protection community and should be read with that in mind. AFMA is not an animal protection organization.

Introduction

Apologists for the vivisection industry are myriad but can generally be divided into two groups. First, there are those who currently use or have used animals in the past in research and their representatives. They have not only their incomes but also their egos and reputations directly linked to vivisection. Second are the people involved in the Three Rs industry who, like the vivisectioners, have their incomes linked to the continuation of vivisection and in some cases their egos as well since they were in the past vivisectioners themselves. Or, they have an emotional/ego-driven interest in the validity of the animal model since they have promoted the Three Rs and do not wish to concede the obvious; that the Three Rs, when applied to using animals as predictive models, are scientifically untenable [1, 2]. Included in this latter group are those who profess to be advocates for animals but who say: “Gosh darn we just have to experiment on animals. We just have to.”

The apologists, along with their attending chorus in the press hail every discovery in an animal as a future human cure. The truth is, unfortunately different.

What both groups have in common is the difficult problem of saying animals are capable of predicting human response while simultaneously saying that is not why they are used, since the evidence animals *cannot* be used to predict human response is overwhelming [1-7]. (See Greek and Shanks’ [books](#) for more details about animals not being predictive for humans.)

In arguing for the importance of the animal model the apologists use a shotgun strategy. They shoot out multiple arguments hoping that one will hit its target. None of the arguments are deep; they all present a very superficial case for whatever point the apologist is trying to make and they do not stand up to scrutiny. This tactic has rhetorical advantages however. A critic must try to block or dodge every argument. If the critic

overlooks a single one, the apologist can claim that *it* is the killer argument. Also, since there are many arguments, a critic with limited space or time cannot build an impenetrable defense against any of the arguments. Niall Shanks and Ray Greek have refuted the apologists' main arguments and refer the reader to [*Animal Models in Light of Evolution*](#) for that refutation.

This essay is not about proving animal models fail the test of prediction but rather about why so-called animal protection groups, by denying that animal models fail the prediction test, are in fact delaying the end of vivisection.

Three Rs and Alternatives

The reason the animal model community supports using animals in research is self-evident. In order to understand some of the motivation of those in the Three Rs industry we need to define and discuss the Three Rs and alternatives. The Three Rs are literally three words each of which begins with the letter R. Proponents of the Three Rs want to see the number of animals used in research reduced, the pain and suffering of animals reduced by using protocols that have been refined to decrease pain and suffering, and ultimately the replacement of animals in science.

The Three Rs are all about *alternatives* so we need to analyze that word as well. The word alternative comes from the Latin *alternare* – meaning *to interchange*. According to *The New Oxford American Dictionary* it means: “One of two or more available possibilities.” It implies viability, which of course raises the question whether animal models are viable in the first place. A scientifically invalid practice cannot, properly speaking, be replaced with an *alternative*. Put another way, there are no *alternatives* to animal experiments that purports to predict human response. One way to explain this is to say that tofu is *not* an alternative to eating rocks for nutrition. It *is* an alternative to eating cows however. Are animal models rocks or cows?

Below are the definitions of alternative from two dictionaries (my comments are in bold):

Encarta

noun (plural al-ter-na-tives)

Definition:

1. other possibility: something different from, and able to serve as a substitute for, something else.

You could take the bus as an alternative to driving. **Original is viable, in this case driving is viable.**

2. possibility of choosing: the possibility of choosing between two different things or courses of action.

We gave you the alternative; you decided to stay. **Original is viable, in this case staying is the original option and is viable.**

3. option: either one of two, or one of several, things or courses of action to choose between.

I can't decide which of the two alternatives is worse. **Both are viable, just not great.**

American Heritage

NOUN: 1a. The choice between two mutually exclusive possibilities. b. A situation presenting such a choice. c. Either of these possibilities. See synonyms at choice. 2. Usage Problem One of a number of things from which one must be chosen.

ADJECTIVE: 1. Allowing or necessitating a choice between two or more things. 2a. Existing outside traditional or established institutions or systems: an alternative lifestyle. **Original is viable, in this case traditional lifestyle (husband/wife or whatever) is viable.** b. Espousing or reflecting values that are different from those of the establishment or mainstream: an alternative newspaper; alternative greeting cards. 3. Usage Problem Substitute or different; other.

As the above clearly illustrate, viability of the original is implied when one suggests an alternative. This has implications for animal protection organizations (APOs). Some APOs insist that when they use the word *alternative* they mean a replacement or substitute for using animals and do not mean to imply the animal models are viable. That is like Humpty Dumpty saying in *Through the Looking Glass*: “When I use a word . . . it means just what I choose it to mean -- neither more nor less.” If someone states that when he says, “Jack murdered Jill” he really means is, “In Boston, they bake beans” that is all well and good but such an attitude hardly facilitates communication in normal society.

The Humane Society of the United States (HSUS), The Fund for the Replacement of Animals in Medical Experiments (FRAME), the Johns Hopkins-based Coalition to Abolish Animal Testing (CAAT), and the UK-based Royal Society for the Prevention of Cruelty to Animals (RSPCA), all support the Three Rs as do many other APOs. For that matter, even people who experiment on animals support the Three Rs. Discussing alternatives for animal models validates animal experimentation; why else would we need an “alternative”? Below, we will examine some of the apologists for the vivisection industry and the resulting recent developments.

CAAT

Thomas Hartung is in the Department of Environmental Health Sciences at the Johns Hopkins University Bloomberg School of Public Health, and is Doerenkamp-Zbinden Professor and Chair for Evidence-based Toxicology. He is director of the Johns Hopkins Center for Alternatives to Animal Testing (CAAT). In addition, he sits on numerous committees and has received awards from animal protection organizations recognizing his many contributions to animal protection.

Thomas Hartung wrote an article in the July 9, 2009 issue of [*Nature*](#). The following are taken from that article. Some of what he states is correct:

There is almost no other scientific field in which the core experimental protocols have remained nearly unchanged for more than 40 years . . . The first issue is the extent to which animal models reflect human responses. It is clear that the use of animals has limitations: we are not 70 kg rats; we take up substances differently; we metabolize them differently; we live longer (allowing certain diseases to

develop and prompting evolutionary adaptations to protect against them); and we are exposed to a multitude of environmental factors.

True enough. But his presentation of the problem then falls on back on the traditional, nonscientific, vivisection position of, “Gosh darn, we have to use animals we just have to.” This position is, of course, dressed up in misleading jargon.

In one study, 43% of toxic effects in humans were *correctly predicted* by tests in rodents, and 63% by tests when non-rodent animals were also included. (Emphasis added.)

This is not just misleading it is completely false. The study Hartung is quoting does not offer any reason to suspect animal tests can be used to keep bad drugs off the market or clear good drugs and certainly does not prove that animal models can *predict* a drug’s actions in humans. See our articles in *Skeptic* “Animals and medicine: do animal experiments predict human responses?” (the article is available from [Amazon](#) for a fee) and *Philosophy, Ethics, and Humanities in Medicine* “Are animal models predictive for humans?” (available for free) and our book [Animal Models in Light of Evolution](#) for more on this. Hartung is either incompetent in his field or is completely disingenuous.

The answer to the question, “what should toxicology do in the twenty-first century?” is both easy and difficult. The easy part is, “Stop using animals because animal testing does not predict human response.” The modality simply does not work. The difficult aspect of the question is that nothing else does either. Scientists need to find predictive technologies that can be implemented in preclinical testing and disease research. But the lack of those predictive technologies does not justify the continued use of a failed one. *Nowhere in Hartung’s essay does he mention this.* By this omission, Hartung places himself clearly into the camp that says, “We cannot stop using animals tests that do not work until we find *alternatives* that do.” This is an abuse of language and an abuse of science and logic.

An analogy might be the man who suffers from a headache and in desperation begins to hit himself in the head with a mallet. A physician comes along and inquires as to the problem. The man replies that he has a headache that is not responding to any of the usual treatments. Upon further examination, the physician agrees that the headache is unusual and that medical science has nothing to offer at this time. The physician does however then suggest that the man stop hitting his head with the mallet because, even though the physician cannot cure the headache, hitting ones head with a mallet is counterproductive. Furthermore, one is using time and resources up on the mallet therapy that could be applied to developing useful options.

Hartung is indeed popular among scientists supportive of vivisection and scientists who work for so-called animal protection groups that promote the Three Rs. If they did not have someone saying what he is saying they would have to invent him. Hartung and Rovida 2009:

As toxicologists, we support the aims of REACH — it is the biggest investment into consumer safety ever. However, we feel that legislators have underestimated the scale of the challenge. [8]

REACH is a European program that aims to test, on animals, every chemical on the market in order to determine toxicity and so forth. At no place in this article did Hartung say animal testing is simply not predictive for humans; the reason the tests are being performed.

If Hartung believes we are being unfair to him, we invite him to state clearly and for the record, in a journal like *Nature* or *Science* (journals he clearly has no problem publishing in) that:

1. animals are used in drug development, especially toxicology in order to predict human response;
2. that animals are in fact not predictive for humans; and therefore
3. that FDA and EPA requirements for using animals to predict human response should be abandoned immediately.

These are not tricky or misleading statements. We would expect him to clearly spell out *why* animals are not predictive on the CAAT website as well. We can imagine no reason for him not to do these things, as they are not ethics-related issues, where many may disagree, but rather straightforward science supported by even a superficial reading of the pertinent scientific literature. (If Hartung is having trouble locating this literature, we refer to the above mentioned book and articles and this web site where he will find numerous other books and articles proving our position.)

Using animals in toxicity testing has been likened to throwing dogs into the ocean in an effort to save a person from drowning. Obviously throwing dogs into the ocean will not save the person. The only result of this insane action will be that the dogs too will drown. What the drowning person needs are life jackets.

Society does not have them and we need them.

Alan Goldberg is also at CAAT and holds similar views to Hartung's. Below is an email from Hartung further outlining his belief that animals are *necessary for much research*.

From: Altweb News
To: altweb-news@jhsp.edu
Sent: Wednesday, September 25, 2002 5:26 PM
Subject: 9/23/2002 - Letter from Dr. Alan Goldberg

Dear colleagues and friends,

Now that the academic year is underway, I wanted to take a moment to share with you some remarkable news that reflects positively on both Johns Hopkins and our Center: A select committee of the British parliament's House of Lords has recommended the establishment of a UK center, based upon the CAAT model.

Earlier this year, I was invited to appear before the House of Lords to discuss our work at CAAT, and my own efforts on behalf of the Three Rs internationally. This invitation followed a formal visit by the committee to Baltimore and The Johns Hopkins University last spring. In my statement, I acknowledged that laboratory animals are—and will continue to be—*necessary for much research*,

but I emphasized the need to minimize or eliminate pain and distress in *in vivo* experiments through the Three Rs of replacement, reduction, and refinement. I also explained how an alternatives center can be the right platform for achieving consensus, collaboration, and progress.

The committee's recommendation is the product of a year of investigation, hearings, and consultations with a wide range of representatives from both the research and the animal protection communities from both sides of the Atlantic Ocean. This process was summarized in a report: "Animals in Scientific Procedures."

The complete 82-page report is available online on the parliamentary web site: <http://www.publications.parliament.uk/pa/ld/ldanimal.htm>

In the report, the committee wrote, "We recommend that a Centre for the Three Rs be set up, consisting of a small, administrative hub which co-ordinates research units embedded in existing centres of scientific excellence," and added, "In making this specific recommendation we have been particularly influenced by our visit to the Center for Alternatives to Animal Testing (based at Johns Hopkins University in the United States), the evidence we received from ECVAM and the OECD, and the conference we held towards the end of our evidence gathering with representatives from industry, funding bodies, and animal welfare and rights groups."

I appeared before the committee on April 23. You can read my statement online at <http://www.publications.parliament.uk/pa/ld200102/ldselect/ldanimal/999/2042302.htm>

As CAAT begins its 22nd year, we still believe that our approach to enhancing humane science through the Three Rs is the right one. Participating in the House of Lords investigation reconfirmed for me that we are on the right track.

Best regards,
Alan M. Goldberg, PhD

P.S. If you would like to read more about the House of Lords report and reactions to it, a number of news stories are available online. They are listed with the news item about the report, on Altweb at <http://altweb.jhsph.edu>. (Emphasis added.)

The Johns Hopkins Center for Alternatives to Animal Testing is clearly on the side of those who want society to believe that animals are predictive for humans. And they are earning a nice living from it.

FRAME

We have refuted FRAME's arguments (see for example, our [response](#) to their criticisms of our first book *Sacred Cows and Golden Geese: The Human Cost of Experiments on*

Animals) before so will only briefly defend here our contention that FRAME is one of the APOs doing more harm than good.

From FRAME's website

About FRAME

The current scale of animal experimentation is unacceptable

However, FRAME recognises that immediate abolition of all animal experiments is not possible. (Emphasis added.)

Because:

Vital medical research must continue to find treatments for diseases which lessen the quality of human and animal life. New consumer products, medicines, and industrial and agricultural chemicals must be adequately tested in order to identify potential hazards to human and animal health, and to the environment. (Emphasis added.)

FRAME advocates the Three Rs approach to this problem

Our long-term goal is the total elimination of laboratory animal use, through the development, validation and acceptance of replacement alternative methods.

Until this goal is reached, we also support efforts to reduce the numbers of animals used through better science and better experimental design, and to refine procedures so that the suffering of any animals necessarily used is minimised.

FRAME seeks to promote a moderate, but nonetheless determined approach, by encouraging realistic consideration of the ethical and scientific issues involved, and the widest possible adoption of the Three Rs.

Consider the case of using monkeys to test the polio vaccine for contamination. Bhogal and Combes of FRAME wrote in the Three Rs magazine *ATLA* in 2006:

In a small number of cases, GA [genetically altered] mice might eventually supplant the use of other animals in research and testing. One example is the use of transgenic TgPVR 21 mice expressing the human polio virus receptor for the neurovirulence testing of the oral polio vaccine (OPV), which could obviate the use of primates in such tests. The use of this model is supported by the World Health Organisation (15), since not only do these mice display histological and physical signs of motor neuron degeneration associated with human forms of the disease that can be monitored by paralysis scoring, but also because tests of OPV lots can be conducted in 2 weeks rather than in 1.5–2 months, the time taken to conduct primate-based neurovirulence testing. [9]

Apparently, what FRAME, and the vivisection community, wants to do in this instance is replace primates with mice.

Contrast that position with the below. According to the Dr Hadwen Trust [10]:

Primates are used routinely to test for reversion to neurovirulence of batches of polio vaccine. The vaccine is injected into the spinal cord of groups of macaques, causing severe suffering, including paralysis.

MAPREC (Mutant Analysis by Polymerase chain reaction and Restriction Enzyme Cleavage) is a non-animal molecular method of assessing the production consistency of polio vaccine. It detects mutations which could lead to the vaccine virus regaining virulence. MAPREC can be used for all three strains of the polio vaccine and has been validated and accepted by the World Health Organisation (WHO) [3]. However, the WHO currently only uses MAPREC as a screening process rather than a complete replacement of primate tests. Vaccine batches that pass MAPREC are still put through the primate neurovirulence test, while any batches that fail MAPREC are discarded.

The primate neurovirulence assay is not 100% effective as it has failed to detect deliberately-induced test mutations in the polio vaccine [4-5]. MAPREC is considered more sensitive than the primate test [4]. The way is therefore open for the implementation of MAPREC as a full replacement for the primate tests. So, it's doubly unfortunate that the transgenic mouse assay for neurovirulence, which uses more animals and is arguably more severe than even the primate test, has been accepted so rapidly in comparison with MAPREC.

References

3. WHO Expert Committee on Biological Standardisation (1999). *WHO Technical Report Series 889, forty-eighth report*:13.
4. Rezapkin GV et al (1998). Genetic stability of Sabin 1 strain of poliovirus: Implications for quality control of oral poliovirus vaccine. *Virology* 245:183-187.
5. Rezapkin GV et al (1999). Mutations in Sabin 2 strain of poliovirus and stability of attenuation phenotype. *Virology* 258:152-160.

Grachev reported the success of the MAPREC in 2001, fully five years prior to FRAME's advocating using mice. [11] Real time PCR can also be used. [12]

Replacing monkeys with an in vitro test that is more accurate is obviously more in keeping with animal protection. Clearly that is what any true animal protection group, or even any group advocating good science would recommend. But what do Bhogal and Combes suggest? Replace the monkeys with mice. I wonder what would make them say that? Could it be because of funding sources?

This is more proof that the Three Rs community, including FRAME, is disingenuous in asking society to regard them as advocates of animals or as scientific experts. They are in fact advocates for the vivisection community that funds many of the organizations promoting the Three Rs.

Michael Festing of FRAME in the UK wrote in an editorial in *ATLA* in February 2009:

In the long run, it would be highly desirable to replace all animal toxicity tests by in vitro tests, as suggested by a committee of the US National Academy of Sciences in 2007. *However, research to make this possible will probably take many years. In the meantime, the animal tests need to be substantially improved.* But there is one simple way in which scientists could substantially improve testing methods and pave the way for the personalised medicine of the future, without using any more animals. They should control and identify the genetic variation in the rats and mice used in their experiments—something which they completely fail to do at present. (Emphasis added.)

This is typical rhetoric from the Three Rs community. Paraphrased, what Festing is saying is that we know animal tests do not predict human outcome but until we find tests that do we cannot abandon testing on animals. This is completely irrational. Festing's suggestion, that we use genetically identical or at least similar animals in toxicity testing is equally fallacious. His reasoning goes something like this:

P1. Animal testing in toxicity currently is not predictive because of genetic dissimilarities among the test animals.

P2. If the test animals were genetically similar they would be predictive for humans.

Conclusion. Make the test animals genetically similar.

The elephant in the room in Festing's logic, indeed the elephant in the room in every Three Rs endorsement and discussion, is the fact that animals, genetically similar or dissimilar, cannot predict human toxicity response. Dress up the argument any way you wish, you will never make a human out of a mouse, monkey, or dog. P1 should be: Animal testing in toxicity currently is not predictive because of genetic and other dissimilarities *between species*.

Festing then says, "*However, research to make this [replacing animals] possible will probably take many years.*" What this really means is: But lets not go overboard and abandon animals in toxicity testing as that would put many people out of work and challenge the entire notion that animals should be used in biomedical science. Festing defends the Three Rs with myth:

The Principles of Humane Experimental Technique by Russell and Burch, published 50 years ago this year, has had a major impact on the use of animals in biomedical research.

This is simply untrue as in the same issue of *ATLA* an article point out that the number of animals used appears to be increasing. The fact is that the number of animals used *is* increasing. So much for Reduction. Festing:

The Three Rs: Replacement, Refinement and Reduction, provide a framework in which each animal experiment can be ethically assessed. Could the results be obtained without using animals? If not, how can pain, suffering and lasting harm be minimised in the proposed experiment, and how can the number of animals

used be reduced without loss of information? The Three Rs are now established in European legislation . . .

(See below on the European Parliament.)

Jean and I have worked in two university medical schools (RG), one university veterinary school (JG), been friends with vivisectors, and personally performed experiments with animals, we can assure the reader that the Three Rs are a checklist the researchers must complete. That's it! There is no thought that goes into this. The researcher is trying to obtain funding or otherwise get ahead in his chosen profession. He views animals as nothing but a means to an end. He does not spend hours contemplating whether this research protocol, that he learned over four years in graduate school and is the only one he knows how to do, is actually producing data that can be extrapolated to humans or whether the data could be discovered without animals. This is sheer myth. We have been there.

Real medical science long ago acknowledged that differences between humans mean that what works in one might not work in another. In medicine, physicians have long thought of animal experimenters as people who could not get into medical school and had to find a different way to make a living. They have never been greatly respected and the results from their research are simply ignored, as it has no relevance to humans. Despite this, and in part because physicians are not as vocal on this as they should be, society continues to accept vivisection as a necessary evil.

It would be nice if at least the so-called animal protection groups like FRAME acknowledged that animals are not predictive for humans in toxicity testing and acknowledged what that implies.

HSUS

I was on the HSUS Scientific Advisory Committee (SAC) for many years and found the below to be representative of HSUS.

David O. Wiebers, M.D. is the current chairman of the board of HSUS so I will begin with his statements and position on vivisection. Wiebers has been active in HSUS for decades including being on the SAC and chairing it. He is also professor of neurology at Mayo Clinic and author of over 100 scientific publications. In 1991 he delivered an address which was reproduced in 1994 as "Animals and Medical Science: Vision of a New Era" [13]. His statements are indented while our comments are not. Wiebers:

As a physician, I have a great interest in the advancement of medical science to improve the health of humans and other living beings, but I also have a great interest in the protection of animals, and I can tell you that it has not always been easy or pleasant to reconcile the priorities of these two communities when it comes to this issue . . .

Wiebers is here preparing his audience for the necessary evil argument.

Indeed, although it is very encouraging to see immense progress in many areas of animal protection over the past decade or two, in the area of biomedical research and testing, relatively little progress has occurred over the past century. All of this may logically lead you to ask: in the face of such overwhelming opposition to change, is it really possible to accomplish anything substantive in this area?

My answer to this is a resounding "yes." I am convinced that substantive progress can and will occur in this and many other areas because of the power in the underlying motivation of those involved in animal protection. The power of love and compassion for all life, combined with the ability to recognize the deeper identity of other sentient beings, instills within the human spirit an enduring and unflinching energy to protect and care for nonhuman as well as human life. Simple as this may seem, none of us should underestimate the power of this motivation.

As long as APOs limit their arguments to the ethics of using animals we will see exactly the progress Wiebers forecast in 1991—none.

There are other reasons for optimism on a more tangible level, not the least of which is that there are a growing number of physicians and scientists, including individuals at academic institutions, who simply do not buy the status quo in this area.

In addition, I would contend that physicians and scientists, including those presently opposed to animal protectionists, are for the most part otherwise caring, loving individuals and that this characteristic provides them with a strong potential to awaken to the importance of recognizing a higher priority for animals, given the proper circumstances . . . (Emphasis added.)

This prophecy has not been fulfilled.

Among these are advances in legislation such as the Animal Welfare Act, which, despite its many shortcomings, represented a step in the right direction, as is now acknowledged by both the animal protection and medical communities . . .

The Animal Welfare Act (AWA) allows a researcher to perform on an animal such as a dog or monkey any experiment provided the experimenter explains there is no alternative to using this animal. There is a reason the vivisection community supports the AWA.

Let me make a few comments about alternatives to animal research. Most physicians and scientists would agree that the development of alternatives to using live animals in research is desirable. Indeed, some encouraging progress is being made in this area with regard to the use of tissue cultures and other *in vitro* testing, as well as mathematical and computer models. *However, we should not be under any false illusions that all of the findings of animal research can be reproduced in a computer model or tissue culture given our current level of technology and understanding . . . Even though there are many instances where*

we cannot produce a specific piece of information without using live animals, we need to be open to the possibility that that piece of information may not be needed to solve the clinical problem we are addressing. (Emphasis added.)

This is true in what it confirms but wrong in what it denies. No, *in vitro* and other modalities cannot accomplish everything currently accomplished using live intact animals. But what Wiebers statement denies, and what makes it propaganda, is the fact that living, intact animals cannot predict human response to drugs or disease and that it is this alleged predictive ability that vivisectors use to sell vivisection to an unsuspecting public. The best propaganda is that which gives a minor point to the opposition while claiming a major point in return. This is exactly what Wiebers is doing. Fighting on behalf of the vivisection community he is chastising them on a minor point while conceding that intact animals are necessary for safer drugs and to find cures for diseases like AIDS.

One of the things that we who are involved in animal protection need to do more of is to think of ways to motivate and inspire physicians and animal researchers to utilize their scientific knowledge and innovativeness to develop other means to address health problems.

The only thing likely to “inspire” vivisectors to abandon their current practices is to cut off their funding. What APOs need to do is point out why animal models are not predictive. When society accepts this the rest of the problem will take care of itself. It is this insultingly naïve comments that Wiebers and others like him expect society and animal protectionists to accept. And for too long they have.

Perhaps the time has come for all of us to recognize that humankind's greatest goal, which outweighs lengthening life through medical advancements, is to evolve spiritually and that in order to do this there is a need for us as a species to learn to think of other beings as ends rather than means.

This is great rhetoric and it plays well in some animal protection circles but historically *science* (and force of armies vis-à-vis WWII and so forth) has changed society, not *spirituality*. If someone is looking to maintain the *status quo*, appealing to spirituality in order to accomplish change is a good way to do this.

It [caring deeply about animals] implies a high priority for the development of alternatives to the use of animals in research testing, and education. We should be devoting considerably more time and resources to the development of such alternatives. The main reasons we are not doing so involve convenience, extra cost, the ease of using previously learned methods as opposed to developing new ones, and the lack of enough true concern about other sentient beings besides human beings.

Here Wiebers reinforces the Three Rs and development of alternatives as being the best way to end vivisection. Note again that he says nothing about the lack of predictive

ability of animal models, as this would in and of itself end 50% of vivisection overnight. If someone wants to maintain the status quo, this is how it is best done.

The title of this talk included the phrase, "vision of a new era." I have already indicated to you today that I am convinced that we are on the verge of an era where things will change more substantively in this area.

To paraphrase: The Three Rs and our search for alternatives is working! Lets not muddy the waters with good science.

This will come about either with cooperation between the medical and animal-protection communities or without such cooperation, through increasing pressure from public and governmental sources. The latter circumstance would take longer, and the ultimate result would be far less congenial to the medical profession.

To paraphrase: So lets not challenge the actual science of using animals as predictive models as that would be rude and we are accomplishing so much as is. The essay continues along the same lines.

Unfortunately, Andrew Rowan followed this line of reasoning (vivisection is necessary) when he criticized LaFollette and Shanks book *Brute Science* [14]. Rowan is Executive Vice President of the Humane Society of the United States and the Chief Executive Officer of Humane Society International, Washington. Rowan criticized LaFollette and Shanks for claiming that expanding animal testing to prevent another thalidomide disaster would tend to restrict flow of new drugs on to the market. Rowan stated that because penicillin's toxicity in guinea pigs was published in 1945, before the drug was widely available, this finding did not prevent penicillin from being widely marketed and welcomed and hence 'the more is better' animal testing approach is actually a viable option.

This is fallacious as: 1) at the time penicillin was marketed there were minimal to no animal testing laws; 2) penicillin was a life-saving drug whereas thalidomide was not. Just as cancer and AIDS drugs are today given to people sometimes without ever being tested on animals so the need for penicillin was so great that to compare it to thalidomide is ridiculous; 3) Rowen's statement raises the question of which species are we to believe. Penicillin was excreted rapidly in a rabbit hence Fleming thought it would be ineffective in humans whereas thalidomide caused phocomelia in rabbits. Mice were resistant to the affects of thalidomide but responded to penicillin, as did humans. This type of reasoning leads us to believe that some scientists need a refresher course in scientific methodology and perhaps logic and fallacious reasoning.

But Rowan continues:

The differences in xenobiotic metabolism (e.g. page 145 and following) are well known to toxicologists and are taken into consideration when trying to predict potential effects in humans. Such differences are not insuperable problems nor do they render all animal toxicology useless. In fact, if toxicity studies in animals are problematic because of species differences, then many alternatives (e.g. the Ames

bacterial test for mutagens and cell culture tests for irritants) are likely to be just as, if not more, problematic.

This is like saying that since a Mercedes-Benz occasionally will not start we should abandon cars and walk to wherever we wish to go. In light of the evidence we present in this manual and elsewhere it is obvious that species differences do present insuperable problems. Granted scientists can usually find an animal that mimics the human condition after the human condition is known but the reason society demands animal testing for new medications is for predictive reasons not because they are interested in comparative physiology. Further it is fallacious to say that since other tests are no better we should continue to use the tests we have; even we know they are not predictive. That is like saying since we have no cure for AIDS, we perform trephination on the patients. Rowan:

The use of more sophisticated theoretical arguments to challenge the justification for animal models does not, in the end, convincingly invalidate animal research. True, there are concerns but there are still many examples of successful predication that, in themselves, refute the claims by LaFollette and Shanks. One may not be able to prove that all, or even the majority of applied animal research and testing is useful or predictive, but every example of applied animal research that is useful undermines LaFollette and Shanks's general thesis.

This is sheer nonsense. A law of physics is completely destroyed by one exception. Nothing violates the 2nd Law of Thermodynamics. In biology, we recently saw the one-gene-one-protein rule destroyed by alternative splicing. Predictability is not “we get it right occasionally” and “really, really close” is not a scientific phrase. Granted biological rules are not the same as laws of physics but the point remains. Predictivity in physics can be destroyed by one exception. Predictivity in biology, especially using animal models, can be destroyed by a few examples. (See Greek and Shanks' [books](#) for more on this.)

We could continue analyzing Rowan's bad science but have addressed similar arguments elsewhere so now we turn to what else Rowan has said about the use of animals in research. The below is an email he sent to a list serv of those in the animal experimentation business:

Subject: Re: [COMP MED] HSUS, Balcombe and Pittsburgh
Date: Fri, 5 Feb 1999 02:00:52 -0400
From: Andrew Rowan <arowan@erols.com>
To: COMP MED@LISTSERV.AALAS.ORG

I was out of the office when the Pittsburgh story was posted by Tony Mazzaschi and have been having some difficulty with my email since I got back so, for various reasons, I did not respond earlier. I am also not sure that I saw all the responses to the original posting (because of my email problems) but would like to clarify some of the issues.

Jonathan Balcombe's attendance at the Pittsburgh animal rights three-day event was a matter of discussion in the Animal Research Issues section of the HSUS when we discovered just how "activist" the event was going to be. There was some concern that his attendance might send the wrong message to the research community just as we are extending the hand of dialogue on our Pain and Distress initiative. However, I felt that we, as the HSUS, have some duty to provide speakers at events when invited and requested to do so. I do not believe that we should snub animal activists, especially those in educational institutions. The key is that we should deliver the SAME message whether we are talking to animal rights activists or to research advocates. In this regard, I have established a set of three base-line positions that I want our animal research staff to repeat at public events. These positions are as follows:

- i. The HSUS recognizes that biomedical research, including research on animals, has led to the development of new knowledge and to improved human and animal health;**
- ii. The HSUS recognizes that those responsible for using and caring for research animals are as concerned about animal welfare as we are;**
- iii. The HSUS, like most scientists, looks forward to the day when we will no longer use animals in research that causes pain and distress to the animals. (Emphasis added.)**

We think the above speaks for itself and requires no further elaboration from us. The email continues:

Jonathan Balcombe tells me that, in his hour-long interview with the student reporter (the "quote" came from the interview, not his talk), he repeated the above (if not in my precise words) and that she took only the last segment and used it in her story. Frankly, my own experience with student reporters has not been particularly positive. They usually get both the facts and the context wrong at some level or other.

I want to re-emphasize that those of our staff who go out and speak on these issues are expected to stay "on message" no matter what the group. There is, I understand, widespread sentiment among the research community that the HSUS says one thing to animal activists and another to research groups. We are trying to change that perception, which is not always easy given that people (including reporters) tend to hear what they want to (or expect to) hear. If the HSUS is perceived as a closet antivivisection group (whatever that might mean?), people expect to hear us say we want to see an end to the use of animals in research and then repeat it with an "I told you so!" tone. However, it is perhaps pertinent to note that Dr Colin Blakemore, the Waynflete Professor of Physiology at Oxford University, noted neuroscientist, recent President of the British Association for the Advancement of Science, and victim of many ALF attacks on his home and person, stated at last year's PRIM&R meeting that he also longed for the day when we would no longer have to use animals in research.

I do not know whether this makes him a closet antivivisectionist but I have based our third premise (above) on conversations with him and with many other researchers over the years....

The email continues but we suspect the reader gets the picture: Rowan is a representative of the animal experimentation industry and his views are based on staying their good graces. This is one of the better *suck up* letters I have seen. How anyone can read the above and honestly believe Rowan (and indirectly therefore HSUS) is an animal advocate and not a spokesperson for the industry is beyond my comprehension.

Chris Mondics writing in the *Philadelphia Inquirer*, 2007 [15]:

Andrew Rowan, a senior vice president of the Humane Society, says he expects that within a few decades laboratories will replace animals with computer models and other techniques to test the toxicity of new products. But until then, researchers probably will continue to need animals for their tests. "It is probably not possible to [halt testing on animals] without harmful effects on humans," Rowan said. "But we need to do more and we need to go faster" in finding ways to eliminate the use of animals.

Again, this is typical rhetoric from those who support the *status quo*: "Alternatives are being developed! Let's not get excited and question whether the paradigm is fatally flawed."

Rowan wrote in the *Chronicle of Higher Education* May 8, 2009:

No scientist wants to use an animal in research that causes it harm (or none have ever admitted as such when challenged in public), so they and their critics should alike be pleased that *laboratory-animal use has fallen by 50 percent since the 1970s*, that a National Research Panel recently reported that it should be possible in the relatively near future to end the use of animal testing in the hazard identification and risk assessment of chemicals, and that the use of live animals in laboratory practicals in universities is steadily disappearing . . . (Emphasis added.)

His figures are at odds with everything that we could find that has been published on this topic (see [What is needed in order to end vivisection?](#)). Granted, if one only counts select species of animals one could certainly substantiate almost any claim. But honest accounting is not consistent with this purported decrease or with the myth that society is just around the corner from doing away with animal use in certain areas. Rowan continues:

The animal-research debate remains contentious and highly charged, and I doubt that this will change in the coming decades. However, I am confident that there will be a continuing escalation of public concern over at least some experimental use of animals, and that such concern (among the general public but also among animal researchers themselves) will lead to further reductions in animal use, a continuing reduction in the amount of suffering animals experience in laboratories, and the ending of laboratory research on such species as

chimpanzees. I am also confident that a majority of biomedical scientists, among whose number I count myself, will welcome such developments, even though few may admit as much in public.

To paraphrase: Vivisection is a great idea, let's just hang in there and support them a little while longer.

HSUS is well known for their Procter & Gamble sponsored award given to those who best represent the Three Rs by finding alternatives. The conflict of interest here is obvious as P&G has long been hounded by APOs for their use of animals in vivisection. My issue is relatively straightforward; anyone who supports the Three Rs/alternatives position, explicitly or implicitly, assumes that animals can predict human response to drugs and disease. Such individuals are either ignorant of scientific facts or disingenuous. Let me state clearly and for the record, the scientists working for or with FRAME, HSUS and CAAT are not scientifically ignorant or otherwise without intelligence. That is not the problem.

Anyone or any organization that promotes the Three Rs and alternatives as regards using animals as predictive models needs to be seriously scrutinized.

Some have suggested that I must have some kind of personal animus toward individuals at HSUS, FRAME, CAAT, and other organizations that refuse to state animal models are not predictive and promote searching for *alternatives* before abandoning such models. What these individuals seem to ignore however, are my points about the scientific merit, or lack thereof, of using animals to predict human response. My personal feelings toward groups or individuals are not relevant with reference to the validity of scientific facts. Whether I would have liked or disliked Newton is immaterial to the fact that $F=ma$ and my personal feeling about Bernie Madoff are irrelevant to the fact that he scammed people out of their money.

It does not concern me that individuals or organizations feel threatened when their lack of scientific integrity is revealed. Science and facts in this regard are clear. If animal models of humans are predictive of drug and disease response, then I am wrong about what I have said. However, if animals cannot predict human response then organizations like HSUS, FRAME, CAAT, and other so-called animal protection groups have much to answer for. If they feel I have mistakenly targeted them and they would like to set the record straight, I look forward to their saying in plain English that animal models, when used in drug development and human disease research, are not predictive. They can then go on to explain why they have historically called for waiting to abandon these nonpredictive animal tests until predictive nonanimal ones are developed. If a test or modality does fulfill its function, it should be abandoned. That is not a complicated scientific tenet but rather mere clear thinking.

One must question motivation of groups that support the Three Rs when the very people whose conduct they supposedly oppose also support this concept. Of course that alone is not proof the concept is invalid. However, from an animal protectionist's perspective, it is also concerning that these groups do not seem to *publicly* recognize that society will *never* be able to *evaluate* much less *replace* all research protocols and tests using animals if examined one at a time as the aforementioned groups recommend. If one's livelihood is dependent on campaigning against animals in research there can no surer job security than making sure such experiments are examined one at a time.

The Three Rs may have some use from an animal protection perspective concerning the use of animals in dissection, as heuristic devices, when used to obtain knowledge for knowledge sake and so forth. One can use animals for these scientific functions. However, when discussing animal models for drug testing and finding cures for human disease (the foundation supporting and justifying the use animals in science), endorsing the Three Rs is disingenuous. It is also dangerous as it implicitly endorses the notion of using animals in biomedical research and thus leads to more such use thus indirectly to more harm to humans. Finally, it should be noted that the Three Rs has become a cottage industry, with many people making large sums of money from various aspects of the enterprise, including many in so-called animal protection groups.

For example: Andrew Rowan of the HSUS earned a reported \$188,693 in 2003 [16]. Not a bad income for charity work. Paul Irwin, Andrew Rowan's boss and David Wiebers' colleague at the HSUS in 2003 reportedly earned \$324,175. Contrast these salaries with those paid to people whose stated goal is the support and promotion of animals in research: Donna Marie Artuso of the Foundation for Biomedical Research, \$137,500 and Jacqueline Calnan of Americans for Medical Progress \$98,763. While earning large sums of money is not in and of itself proof of a conflict of interest, when considered along side the scientific basis for some of the arguments these apologists make, it certainly supports that view.

The Three Rs has seemingly become a devious exercise based on a pretense for concern for animal welfare. It deflects attention and debate away from the very real issue of the invalidity of animal experimentation in medical research. Animal modelers and others with some kind of a vested interest in animal experimentation support the Three Rs. It serves their purpose perfectly by focusing attention onto what would seem to be their concern for the welfare of laboratory animals; a concept with which everyone agrees. By doing this they can avoid entering any dialogue about the scientific validity of inter-species extrapolation. Anyone who endorses the Three Rs acknowledges that animal experiments are predictive and that they cannot be abolished until all such experiments, of which there are probably hundreds of thousands, are replaced by nonanimal methods. They claim that animal experiments can only be judged for scientific validity, necessity and justification on a case-by-case basis.

False hope

Telling society that animal models, when used to predict human response, are scientifically tenable has consequences. In the spring of 2009, the European Parliament (EP), arguably the best bet for pro-animal changes in animal experimentation, chose to side once again with those saying "your dog or your child." They actually made the current situation worse for animals. The EP regurgitated the Three Rs and the vivisection community was ecstatic. The EP press release:

"We all want to see animal tests reduced. However, European citizens quite rightly demand the best and most effective medicines", Mr Parish said. (Emphasis added.)

In the spirit of “your dog or your child” the vested interest groups conflated drug safety with testing on animals implying that animal tests are predictive for humans. According to [Science](#):

Approving recommendations made by a committee last month, the European Parliament today soundly rejected calls for legislative changes that could have more severely restricted the use of animals in research.”

European scientists had been concerned that the amendments to the 86/609/EEC directive, proposed in 2001, would limit animal research and increase its bureaucracy. As a result, biomedical groups and animal-rights groups engaged in fierce lobbying. However, scientists breathed a sigh of relief last month when a report by the European agricultural committee proposed removing many of the barriers that had most worried scientists. Today, a large majority of the European Parliament voted in favor of the committee’s recommendation. Its report will now move to the Council of Ministers as the debate rages on.

This was an unmitigated victory for vivisectionists. The *Science* article continued:

Even animal-rights groups were partially pleased with the outcome, with the Dr Hadwen Trust, a U.K. medical-research charity that promotes the use of alternatives to animal research, citing positive changes such as improved pain-severity classifications and more investment in alternatives to animal testing.

We seriously question what any animal protection group could possibly find to be pleased about. The *status quo* is, if anything, weakened, several potential advances were absolutely defeated, the same old rhetoric was used to justify the *status quo*, and the vivisection community is very happy with the outcome. Any supposed animal protection group that agrees with the vivisection community about this should be called into question regarding their motives and where their funding comes from.

There has been no real change for the better, from the perspective of science or animals, in animal-based research and testing in the last century. There has been constant improvement for vivisectionists as more and more money becomes available for them and as their financial interests are represented by special interest groups and lobbyists. As long as the animal protection community heralds defeats as victories there will no real change for the better in the next century.

The Times of London published an [article](#) on June 5 stating, “Animal experiments could end in a generation.” The idea is that “The use of animal experiments could be replaced by research on “virtual human beings” and tests on banks of living cells within a generation. . . .” Later the article states: “These models have the ability to be far more accurate. I sometimes think it is just tradition — that feeling that if it’s safe in an animal it’s safe in a human — which means so many animal tests are still carried out.”

Let’s examine these statements a little more closely.

While it is true that tradition plays a large role in the continuation of animal experimentation, and I am glad to see that the scientist quoted realizes this, it is not true that computer-based or in vitro tests can predict what a drug will do in humans.

Currently, there really are no tests that can predict what a drug will do in you. Granted, animal tests are dismal at predicting such things but the other oft-ignored side of the coin is that pharmaceutical companies and scientists have nothing else that will work either.

This lack of predictive technologies is being addressed vigorously by the research community, as there are big bucks for anyone who comes up with a way to predict what a drug will do in humans before the human in question takes it. But the only way this is going to happen is by matching effect and side effect to the gene profile and this is decades away for a majority of drugs. It will happen, but waiting for it to happen before ending drug testing on animals is not justifiable.

Animal experiments could be reduced by greater than 50% if society simply abandoned the ones that do not work; for example the ones that are used to predict human response. Even if we really stretch what the word *prediction* means in science, animal tests still do not pass. Animal testing in order to predict human response to drugs and disease simply does not work.

Too often we hear or read animal protectionists advocating the position that nonanimal tests already exist that are predictive and the pharmaceutical industry just keep on performing animals tests because they like the practice. This is not true. Granted, industry continues animal testing for reasons that are not entirely rational but it is *not* doing so despite the fact that myriad other predictive modalities exist.

We also read or hear animal protectionists advocating that we must wait for alternatives to be developed before ending animal testing. The article echoes this when it ends by stating “The National Centre for the Replacement, Refinement and Reduction of Animals in Research funds and develops non-animal alternatives and, where animals must still be used, works to minimise numbers and suffering.” This is unfortunate as it implies that animals must be used in certain predictive tests. The article is probably referring to animal-based research to predict how humans will respond to diseases and drugs. As animals are not predictive in this area, it is poor journalism that the author implies that they are. For anyone claiming to be an animal protectionist to advocate this same position is evidence of disingenuousness or ignorance.

The first step in ending vivisection must be to acknowledge where it does and does not accomplish its stated purpose. Until the scientific community, the animal protection community, and society in general admit that animals are not predictive for humans all other talk about ending vivisection is destined to be nonproductive.

The kind of animal tests this article is discussing *could* end in a generation. They could also end tomorrow. There is no *scientific* reason preventing this from happening.

Lauding the development of tests to replace the Draize and LD50 are counterproductive if those praising such developments do not simultaneously point out the fact that both were scientifically invalid. They did not predict human response.

AFMA

In contrast to the Three Rs industry, AFMA and I have historically attacked the scientific underpinnings of the paradigm of using animals to model humans in the same way that, since the paradigm of physics does not allow for perpetual motion machines, the US Patent Office will not even consider such patent applications.

Evidence comes in essentially two flavors: empirical and theoretical. The scientific literature of the last 100 years or so reveals sufficient empirical evidence to justify concluding that animal data in medical research is not predictive for humans. However, this evidence is usually considered second class compared to theoretical arguments.

Theoretical evidence has been gathered over the last 10 years in the form of arguments from, among other places, evolutionary biology, developmental biology, genetics vis-à-vis gene networks, regulation, and expression, the study of complex systems, and the progression of biological science from dependence on reductionism to the study of systems as a whole. *This evidence ends the argument of whether animal can predict human response and it is this that AFMA focuses on!* Spending resources elsewhere is a waste of lives.

I urge the animal protection community to consider the above when deciding what organizations to support.

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