

Tributes for animals and the dedicated people entrusted with their care: a practical how-to guide

To the editor:

On a beautiful fall morning in Bethesda, Maryland, the National Institutes of Health's (NIH) animal care and use community gathered in the center of the Campus to pay tribute to research animals and to acknowledge the work of the people who care for them (Fig. 1). While this tribute ceremony was initiated in 2016 by the NIH community, similar events have become more common domestically and internationally since they were reviewed by Iliff fifteen years ago¹. Tributes recognize the scientific progress and human and veterinary health care advances that are made from the use of animals in research, and they validate feelings of conflict that are natural for those that care for laboratory animals¹. Tributes to the tremendous contributions laboratory animals have made to biomedical research, education, and testing and to the staff responsible for the care of those animals are excellent ways for organizations to recognize their commitment to stewardship and a culture of care².

Stewardship is an important concept to embrace when caring for animals in biomedical research. In this context, it implies both a responsibility *for* the health and welfare of the animals and an obligation *to* the greater good, the research community, and public health³. Tributes can also bring together scientific and animal care staffs, groups that often work different hours and, at times, may feel at cross-purposes.

This article will review the history, background, and importance of tributes for research animals and can serve as a guide to those wanting to initiate a tribute within their own organizations.

Importance: the human-animal bond

The relationship between research animals and scientists has been described as “The Inevitable Bond”⁴. This bond also occurs between research animals and animal care personnel, who provide support but may not directly participate in research⁵. It intensifies the more closely the people work with the animals, so caregivers in research animal facilities may actually form stronger bonds than, for example, senior scientists who handle animals less often⁵. Though vivarium staff caring for large numbers of shorter-lived species (such as rodents) may not bond as often to individual animals, feelings of conflict may still arise. Care staff generally do not decide when the animals they care for are euthanized, though they may in fact be tasked with performing the procedure^{5,6}. They may not understand why euthanasia is sometimes delayed (for example, while investigators wait for genotype information for transgenic animals) and may not grasp the reasons why large numbers of (apparently healthy) animals are euthanized. The associated feelings of sadness and powerlessness



FIGURE 1 | The animal tribute garden (a) and plaque (b) at the National Institutes of Health in Bethesda, MD.

have been described as compassion fatigue and as ‘moral stress,’ a form of stress that occurs when people are required to perform actions that they cannot justify on moral grounds^{5–8}.

Despite the “Inevitable Bond,” Arluke noted that scientists are likely to experience moral stress about animal use early in their professional lives, before their “ethical socialization” in the laboratory⁸. He wrote in 1994, “Scientists mature ... within a culture that believes its own ideological claims for the importance of knowledge production, the need for objectivity and professionalism, and the priority of the concerns of humans over those of animals.”

In contrast, vivarium staff approach their work from a perspective of caregiving and may experience moral stress and compassion fatigue throughout their careers, putting them at an increased risk of Post-Traumatic Stress Disorder (PTSD)^{6,7}. Care staff may be especially vulnerable to Perpetration-induced

Traumatic Stress, a form of PTSD that occurs when individuals actively participate in a traumatic event⁷. PTSD can manifest itself in a myriad of physical and psychological difficulties, which can include sleep disturbances, depression, and substance abuse^{6,7}. While some research suggests that traumatic stress is cumulative, repeated exposure to a stressor can also help stimulate the development of coping mechanisms⁷. Social support, which has been associated with lower stress levels and improved job satisfaction in vulnerable individuals, can help^{5,7}. Tributes recognize and advance three types of social support: peer support among animal workers, an affiliation with animals, and an animal worker's positive relationship with management⁷.

Although an affinity for animals and forming bonds with individual animals can lead to moral stress in care personnel, research institutions should endeavor to recognize and promote the human-animal bond because stronger bonds are linked with better animal welfare^{4,5,9–11}. Animals depend on their caregivers for food, water, bedding, health care, and environmental enrichment. The commitment of the animal care staff to provide these things unflinchingly is intrinsic to the human-animal bond and tantamount to being a good caregiver. Recognition of the similarities between research animals and humans and what they may experience also strengthens the human-animal bond¹⁰. Thus, even guiding principles, such as United States' Government Principle IV ('Procedures considered painful to a human should be considered painful to an animal'), can further this bond¹⁰. Animal tributes may also help promote the human-animal bond by acknowledging the difficulties associated with it. Tributes also emphasize an important similarity between humans and animals that is not acknowledged by the law¹²: that animal lives have value beyond that of property and are worthy of acknowledgement.

History:

Asian research institutions, and especially those in Japan, have held tributes to research animals for decades^{1,13}. The Buddhist faith (widespread in Asia) holds that the killing of any animal is a sin¹. Although not exclusively religious in nature, Japanese tributes are intended to ease the souls of those who conduct research on animals. They use the terms 'ireisai' and 'kanshasai,' which roughly translate to 'comforting the soul' and 'giving of thanks,' respectively¹. In Japan, it is common to pray for the successful rebirth of souls—both animal and human—after they die⁶. Of eighty-three institutions in Japan that responded to a recent survey about research animal tributes, an impressive 95% hold animal memorial ceremonies, and 72% have a physical monument to the animals¹³. Some have associated the popularity of laboratory animal memorials in Japan with the country's focus on kanshasai¹. Regardless of the reasons for the preponderance of animal memorials in Japan, we can look to Japanese research animal tributes as a model.

Other Asian countries also promote tributes to research animals. Korean researchers have published on ceremonies to honor research animals ('tongmul wiyongje') conducted at institutions in their country^{1,6,14}. For example, the annual event at the National Institute of Food and Drug Safety Evaluation in Korea dates back to the 1920s¹. The Japanese, who occupied Korea from 1910–1945,

were the originators of the oldest animal remembrances there; while ceremonies may not have been held annually since they started, there has been a resurgence of appreciation for all animals in Korea in recent decades⁶. In China, the Soul Consoling Stone pays tribute to animals used in SARS (Severe Acute Respiratory Syndrome) vaccine research¹⁵. Research animal tributes have also been held at the Armed Forces Research Institute of Medical Sciences, in Bangkok, Thailand, intermittently beginning in 1958, and annually since 1992 (ref. 1).

Historically, the focus of tributes in the United Kingdom, Australia, and North America has been on companion animals and police and military animals^{1,6}. The University of Guelph in Ontario, Canada, is credited with holding the first campus-wide research animal tribute in North America in 1993; the published text of their ceremony is available in its entirety¹⁶. The Canadians were inspired by renowned animal scientist Temple Grandin. Dr. Grandin is noted for revolutionizing equipment design and improving animal handling procedures at feedlots and slaughterhouses, which has vastly improved the welfare of livestock¹⁷. She has advocated simple rituals of acknowledgement to prevent stockmen from developing mechanical attitudes towards the animals they handle; Dr. Grandin bows her head as she approaches a slaughter plant¹⁷.

Perhaps owing to their international business presence, the pharmaceutical and scientific industries began the practice of acknowledging research animals in the United States. Susan Iliff reviewed research animal tributes in 2002 soon after they were initiated at her workplace, Merck Research Laboratories¹. Today, tributes to research animals are common in the United States and are held at pharmaceutical companies and contract research organizations¹, universities^{1,18}, primate centers¹⁹, research hospitals²⁰, and at the National Institutes of Health. A recent query about tributes to research animals on COMPAMED, a U.S.-based listserv for people working in Comparative Medicine and animal-based research, was received enthusiastically and garnered many replies. One respondent said that "animal memorials allow for much needed recognition...of the privilege afforded to those who work with animals in research and teaching." Another individual called animal tributes "a matter of staff wellness and appropriate recognition in an often-difficult career."

A culture of care:

Animal tributes bring full circle the ideals of the "culture of care" (Table 1), promoting compassion and respect for laboratory animals and the people that work with them².

Institutions that want to embrace a culture of care may wish to create a mission and value statement that clearly outlines the institution's commitment to humane care and use of animals. This statement can put forth the concepts of advancing knowledge of biological systems, developing life-saving procedures and drugs, and improving the quality of life for animals and humans².

Examples include: "[Our institution] is committed to the humane care of the research animals we produce and work with in all of our activities"; "We are committed to reducing our reliance on animal testing methods, and promoting the development, validation and use of non-animal testing models. The Institution requires that where animals have been or may be used for research or testing,

TABLE 1 | Components of a “Culture of Care”³

Strong institutional commitment to provide the resources and leadership necessary, such as encouraging ongoing communication that reinforces the commitment to animal welfare for all institutional stakeholders (scientists, technicians, shareholders and the public).
Creation of an environment that respects and nurtures staff compassion and where staff feel empowered to come forward with concerns or suggestions to improve the animal care and use program.
Mechanisms to support open communications on all aspects of the program.
A well-defined program of training on aspects of animal care and use, which includes ethics, for all employees, and mechanisms to assure competency.
Programs that recognize excellence in animal care and use for individuals at all levels from care staff to scientists and their teams.
Empowerment of animal welfare oversight committees such as the Institutional Animal Care and Use Committee (IACUC), Ethics Committees (EC) and Animal Welfare Bodies (AWB).
Commitment to, and proactive implementation of, the 3Rs (Replacement, Reduction and Refinement) ²¹ .

that we abide by the principles of the 3Rs of animal research”; “[Our Institution] is committed to ensuring the humane care and use of laboratory animals in the company’s research and development programs. We recognize that high quality science and humane animal care are inseparable. In addition to complying with applicable legislation and regulations, [our Institution’s] laboratory animal research programs and facilities aim to exceed regulatory agency standards.”

Your mission statement could be debuted at your animal tribute event.

Considerations for initiating a research animal tribute:

Initiating a research animal tribute within an organization can be challenging, but there are steps that can be taken to garner support and develop a plan (See **Table 2**). Obtaining support from the senior management at the outset is essential, but some administrators may not fully appreciate the emotional aspects of scientific research using animals and thus may not immediately recognize the benefits of research animal tributes¹. Although this is (by necessity) changing, scientists are notoriously apolitical; many scientists value objectivity above all else, and they may be

hesitant to advocate a specific moral stance or image^{1,8}. More importantly, budgets for science are tight and skepticism about allocating resources to endeavors that don’t directly further scientific discovery should be anticipated. Those seeking to garner support for animal tributes should see an opportunity to educate all levels of management about the benefits of research animal tributes, in terms of potentially improving employee health, job satisfaction and retention⁷. Research institutions should be made aware that helping animal care and scientific staff cope with the ethical and psychological stresses of their jobs can increase staff retention and avoid costly employee turnover^{1,5,7}. Herzog provides useful language, writing, “*Providing an outlet for individuals who may be ambivalent about their job, troubled by what they do, or concerned with others’ view of what they do on a day-to-day basis can initiate a healing process for these individuals*”⁵.

An animal worker’s relationship with management is an important form of social support noted to protect against stress and its negative sequelae⁷. Those seeking support and funding for research animal tributes should emphasize that the tribute is not only to the animals, but also to those who work with and care for them and, therefore, is a demonstration of employee support by management. Funding can come from the animal programs themselves, from individual donations, or from other offices within the organization that have a stake in animal research. If support from top managers is attained at the outset, then this alone may open avenues for funding. As the planning process develops, it is important to develop a timeline for moving the proposal forward and to identify what institutional approvals might be necessary before the project can be started. People with several years of experience working for the organization and who are well-respected should be recruited to join the group so their experience can help put forth the best approach.

Once the concept for a tribute has been formally sanctioned, identify early a sponsoring department or group of ambassadors for the tribute within an organization¹. This is especially critical when a recurring event is planned so that institutional memory is established and the tributes can continue even after the individuals planning the initial event are no longer involved¹. An annual event is important to reaffirm the organization’s commitment and to overcome complacency. Encouraging new employees to attend,

TABLE 2 | Steps to creating a tribute to research animals at your institution

Step 1: Garnering institution support:	<ol style="list-style-type: none"> 1. Bring together people from within your organization that have a common interest in creating a tribute to the animals used in research and the valuable contributions the staff make in providing for their humane care and use. 2. Brainstorm ideas and develop a plan for how to proceed with the potential tribute that could be proposed to senior management. 3. Determine your budget, how much the tribute will cost, and ways to get the necessary funding.
Step 2: Planning the event:	<ol style="list-style-type: none"> 1. Design an event, preferably recurring, that reflects the culture of your organization. 2. Decide on details: time of year, program, religious vs. secular, speakers, and location. 3. Decide who the intended audience is and promote the event accordingly. Consider if the general public will be included, and if security is necessary. 4. Develop a program handout to advertise the event.
Step 3: Creating a physical monument:	<ol style="list-style-type: none"> 1. Discuss and decide if a physical object is desired and what type of physical tribute (artwork, sculpture, plaque, garden, tree, etc.) would be best for your organization. 2. Think about where the physical tribute can be best located, giving consideration to inside or outside, the proximity to staff and the public, security issues, and requirements for upkeep and maintenance.

as part of their orientation, is one way to infuse tributes with new life and contributions each year.

The event should be customized to the culture of the organization, and to the skills, interests, and background of the organization's employees—everyone from entry level cage-wash staff to tenured scientists^{1,16}. Some long-standing tributes have religious roots; in Japanese ceremonies, Buddhist priests may read sutra chants, and attendees may burn incense and say prayers at an altar^{1,13}. But a secular approach may be preferable for organizations employing individuals from diverse religious backgrounds^{1,16}. Some events enumerate the animals used in the preceding year^{1,6,14,18}, but a more positive approach, based on appreciation for the benefits of the use of animals rather than focusing on animal loss, may be more appropriate for a secular or reflective and contemplative ceremony; this also may be more palatable to management^{1,16}.

Consider scheduling the event during a celebratory time for the organization. For example, tributes occur during AALAS' International Animal Technician Week in February or, as in our case, during the NIH Research Festival in September. One reason it is important to get buy-in from all levels of management is so employees at all levels may be excused from their duties to attend, leaving a few experienced individuals behind to care for the animals. Since animal care staff may not have a thorough understanding of the "Big Picture" of potential benefits from research using animals, a guest speaker, such as a patient or family member who has directly benefited from animal research, or a local or national politician championing a specific research cause, can enhance the event⁵. Senior leaders and management from the organization should attend and speak at the event to underscore its importance and reiterate their strong support. Once the details for the event are finalized, a program handout should be produced and the event well publicized and promoted within the organization.

While there are certainly benefits and worthy goals of events honoring research animals, it's also important to try to anticipate what may not be desirable¹. These tributes can be an opportunity to educate the public about the benefits of biomedical research, as well as to emphasize the considerable numbers and broad backgrounds of those who revere and care for research animals. However, those opposed to animal research may use the activity as a vehicle to voice their anti-animal research agenda¹. Therefore, carefully consider where and how to advertise the event as well as the location of the recognition ceremony to minimize disruption¹.

In addition to developing an event, a physical object can serve as a reminder between events and as a meeting place for the gatherings themselves. Plaques with meaningful sentiments, artwork, statues or monuments, other types of artwork, and landscaping have all been described^{1,6,15,16,19,20}. Some features may foster a serial group activity such as planting a tree or shrub, or adding rocks to a garden. While the nature of the object that you choose to dedicate may dictate whether it is located indoors or outside, the location should be considered carefully so that a balance is struck between providing a visible tribute and creating an area for quiet contemplation throughout the year. The security features of your institution should also be considered to avoid unwanted public attention¹. However, supervisors at all levels should be encouraged to tell their new employees about the existence of the site.

Conclusion:

Tributes to research animals are increasingly common in facilities around the world. When thoughtfully designed, they further the welfare of the animals and the health and well-being of those who work with them. Research animal tributes reflect a Culture of Care and can be a demonstrable embodiment of the principle of stewardship that should be a vital guiding force in animal research. We hope that we've provided some insightful information that will help you plan a research animal tribute within your organization.

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The authors declare no competing financial interests.

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