

Barrett Anthony Klein



While introducing Barrett Anthony Klein before his lectures at the Indian Institute of Science (IISc), Bangalore, in October 2010, Raghavendra Gadagkar (IISc) noted that ‘Barrett is a scientist and an artist at the same time’.

Klein has a doctorate in ecology, evolution and behaviour from the University of Texas at Austin. He has worked as an educator, scientific illustrator, model-maker, film-maker, curator of entomology, and a sleep laboratory research assistant in insomnia treatment studies, among other jobs. He has published a number of ‘hard-core’ scientific research papers including a collaborative study describing ‘Caste-dependent sleep in worker honey bees’ in the *Journal of Experimental Biology* (2008) and another in *Animal Behaviour* (2008) entitled ‘Faux frogs: Multimodal signalling and the value of robotics in the study of animal behaviour’, while simultaneously producing scientific art works such as videos, illustrations, models, museum and gallery exhibits. Klein’s website (www.pupating.org) showcases his

work – a case in point of the co-existence of art and science and of how each influences the evolution of the other.

Talking to Klein on artists and scientists ...

Did you start out as an artist or a scientist?

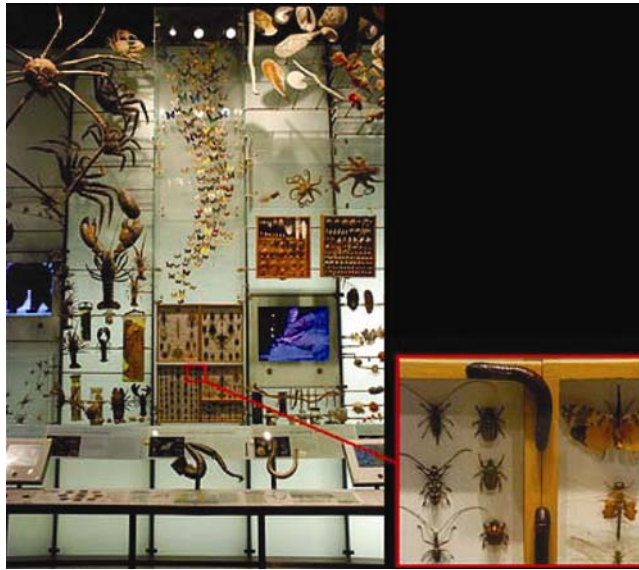
One of the jobs performed by a scientist is to formulate hypotheses about how some aspect of the universe operates and then to test these hypotheses. Science is a process that requires careful, controlled, relatively open-minded and sceptical approaches to analysing questions based on observations. I would say I started out as an artist and a *naturalist*, and later learned how to address my questions about the world more as a scientist. Growing up with parents who are artists and own an art gallery (www.arnoldkleingallery.com), with a twin brother who devotes much of his scientific energies to producing exquisite graphics of the human brain (www.binarybottle.com), and a sister who makes and plays musical instruments (www.korinthianviolins.com), art was a way of life. Art was everywhere and not in the least intimidating. Embracing and discerning what was aesthetically appealing came naturally in my family; so when I first decided that insects would play a central role in my life (age five), I did so with a love of insect forms as well as insect behaviours.

The Russian physiologist Ivan Pavlov said that mankind can be divided into thinkers and artists ... There is also a notion that the left cerebral hemisphere is dominant in thinkers and the right one in artists ...

The wayward implication here is that artists are not thinkers. There is far more overlap between scientists and artists than most people are apt to acknowledge. I am not certain why this is so. There is a continuum between those who are extremely analytically minded who lack creativity, and those who are extremely creatively driven who lack analytical skills. Along this continuum you will find the scientists amply inspired to pursue radically creative notions about how the universe operates and artists who produce logically minded works that serve as grounded commentaries on this same universe. A false dichotomy leads to stereotypes that can do a disservice to both scientists and artists. There is room for members coming from every point along the continuum to contribute to human material culture, from Henry Darger’s off-beat alternate universe created in seclusion, to the careful work performed by technicians in the laboratories. If Alfred Russell Wallace and Charles Darwin had not had rational minds *and* the creative insights to interpret nature, they would not have become the great scientists who changed the world’s notions about how life operates. Is it a



Tungara frogs: (Top) real and (Bottom) faux – mixed media, Barrett Klein 2007. In Taylor, R. C. *et al.*, *Anim. Behav.*, 2008, **76**, 1089–1097. (Source: <http://www.pupating.org>; Courtesy: Barrett Anthony Klein.)



Millipedes – mixed media, Barrett Klein collaboration 1998. In the Hall of Biodiversity, American Museum of Natural History. (Source: <http://www.pupating.org>; Courtesy: Barrett Anthony Klein.)



Biodiversity (colour) etching + colour pencil, Barrett Klein 2008. (Source: <http://www.pupating.org>; Courtesy: Barrett Anthony Klein.)

surprise that Galileo Galilei, Leonardo da Vinci and Ernst Haeckel were each competent in visualizing their subjects?

Do you think that most scientists have a superiority complex and artists an inferiority complex with regard to each other? Or is it the layperson who feels that way?

Any reasonable scientist should be humbled by the complexity and the beauty of

her/his surroundings. Scientists are people and people exhibit a range of attitudes that are contingent upon their environment, as well as the interaction of their environment and their genetic make-up. I know scientists who deeply respect and admire the abilities and the works of artists, and I know artists who deem their work less important than that of scientists. It is important to recognize that there are scientists who conduct research that is sloppy and ineffective, and

there are scientists who conduct elegant studies that lucidly dissect problems of general interest. Judging science can be more easily done than judging art, although the same argument can apply to the range of abilities and effectiveness of artists. A good scientist can effect our impressions of the world by employing rational arguments based on sound observations. A good artist can effect our impressions of the world by any means necessary.

IN CONVERSATION

Is one more valuable or superior than the other? If you are suffering from a chronic illness, you might value the work of a medical scientist to test evolutionary principles and derive a cure to your illness. At the same time, you might value visual art and comforting music to inspire or distract. If values were profession-dependent and everyone chose to engage in one profession over another, division of labour would crumble and a dysfunctional homogeneity would reign.

In a guest editorial in Current Science in 2005, K. N. Ganeshaiyah stated that 'there are far more artists writing and painting on science (or scientists) than scientists writing or indulging in creative arts¹'. Why do you think this is so? Has the situation improved since 2005?

I would disagree with this assessment. I believe that an inherent component of science is visualization. Graphics plays an important role both in making sense

of data and communicating scientific results and ideas. Aesthetics can further one's science and many a scientist either incorporates aesthetics in her/his work, or produces artistic products on the side. Although artists often incorporate or interpret nature in their art, it is less common to see scientific concepts or the process of science, or scientists themselves featured in art. It is all the more uncommon to see an artist contribute to actual works of science.

Do you think that the boundaries between arts and science are becoming less definite?

If the boundaries are becoming less definite, we must be wary consumers, particularly of science. It will be important to continue devising and employing visualization tools in science, and to inspire others by rendering science aesthetically, but the onus is on scientists to incorporate aesthetics without inappropriate compromise. If empirical data are omit-

ted, if the scientific message is altered, if the subjective undermines the objective all in the pursuit of breaking down boundaries between science and art, the product is better situated outside the conventional confines of science to be appreciated as something other than science.

Examples of work falling within this grey zone can be inspirational and thought-provoking. Their value is no greater or no less than true works of science, but should not be judged alongside them or mistaken as one of them. What a dangerous precedent this would set.

1. Ganeshaiyah, K. N., *Curr. Sci.*, 2005, **89**(9), 1451-1452.

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