

Q&A: Prime-time dissection with Joy Reidenberg

Joy Reidenberg is a professor of anatomy at Mount Sinai School of Medicine in New York. She is also the scalpel-wielding comparative anatomist in the award-winning documentary series *Inside Nature's Giants* (titled *Raw Anatomy* in the United States), the second series of which is currently being screened. Reidenberg explains why the spectacle of slicing up animals is good for the public understanding of science and why the discipline of anatomy is still very much alive.

What does *Inside Nature's Giants* convey?

Each programme centres on the dissection of a large animal — in this series, we look at a great white shark, big cats and a giant squid. I cut open the animal and interpret its structures and features, and co-presenter Richard Dawkins adds the evolutionary background. It is amazing to see how different each animal has become through adaptations to varying environments. We also see a lot of commonalities, indicating that many animals arose from a shared ancestor.

How do you select species?

No animals were killed specifically for the programmes. A wish list of target animals was identified, and the crew scouted out corpses of candidates from that list. In the case of the whale that we dissected in the first series, its stranding was very sad, but it was serendipitous for us.

Why do you think that many people find blood and guts gory?

The fact that some people get nauseous when exposed to the sight of a dissection is a comment on our cultural brainwashing. In a less-developed society, in which meat doesn't come from a supermarket, we would have to go out and kill animals for food. When we see dead meat, we should get hungry, not nauseous. Perhaps many of us have moved away from this cultural viewpoint to fit into society. But there is also a deep attraction to anatomy that could be considered a retreat to wilder, uncivilized days.

How has your research background prepared you for the series?

Anatomy is a visual science. I was attracted to it because it was the perfect way to combine art and science — two disciplines that I love, because I am also an artist. My lab looks at animals that have unusual anatomy, especially those adapted to environmental extremes. We hope to find inspiration in nature so that we can model those adaptations to create new medical cures, treatments or protective



technologies for humans. Doing this series is the perfect way to combine my research and teaching. I fly all over the world to dissect the most unusual animals. I also reach a much wider audience than I would if I was restricted to the academic lecture hall.

How does the series engage the public with science?

I hope that viewers will appreciate the diversity of scientific research, including field and bench work. They will see basic scientists as people who are trying to improve our understanding of nature, and applied scientists as those who are trying to mimic nature. It will help people to be less frightened of their own insides, and more fascinated by why and how their body has evolved and how it functions. I would like to see a follow-up series that delves deeper

into the scientific proof of evolution: it is embarrassing to me that so many Americans reject evolution.

What feedback have you had from viewers?

Fans have said that they have been inspired to become veterinarians or research scientists after seeing the series. Some women congratulate me for being a pioneer and role model for young women aspiring to enter the mostly male-dominated field of science. Some folks just admire my bravery in delving into the slime to literally dissect the animal from the inside out.

Is there much left to learn in anatomy?

Unfortunately, many people think that it is an old and outdated science, and that everything has already been found. In fact, huge discoveries are still happening. Some of the most exciting ones have come from advances in visualizing living anatomy by using modern imaging technologies. For example, in my own research area, fossils are being reconstructed on the basis of anatomical relationships derived from images of live animals — these show how soft tissues and bone interact under varying controlled conditions.

What creature would you like to dissect that is not on your list?

I would like to dissect a penguin. It is an aquatic bird with an external body form that has evolved and converged with that of marine mammals. I think it would be fascinating to trace how it differs internally from other birds — aquatic, terrestrial and tree-dwelling — and explore the similarities with other aquatic animals. ■

Interview by **John Gilbey**, a writer based in Aberystwyth, UK.

e-mail: gilbey@bcs.org.uk

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Inside Nature's Giants/Raw Anatomy

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