

Animal/Human Hybrids

Editor's Note: The bulk of Heather Zeiger's study in bioethics has focused on the major issues addressed in American media, politics and science, such as stem cells, cloning and euthanasia, which is why she so anticipated this year's theme for the Center for Bioethics and Human Dignity Conference: Global Bioethics. The global context brought a broader perspective on the issues surrounding bioethics: India's medical tourism and black market organ donations, treating AIDS/HIV in Africa with limited resources, and euthanasia laws in Australia. One country that has been at the forefront of bioethics news is Great Britain because of their lenient legislation on issues concerning human dignity and "human exceptionalism" (the idea that humans have a higher moral status than any other species). This is the first article emerging from her studies and experience at the Global Bioethics conference.

Dr. Calum MacKellar of the Scottish Council on Human Bioethics, who has represented Scotland at the Council of Europe and UNESCO, discussed human/animal hybrids, which can be legally created for research purposes in Great Britain. This article reports the major points of Dr. MacKellar's lecture and unless otherwise noted, all facts and statistics are drawn from his extended report on the Scottish Council on Human Bioethics Web site (www.schb.org.uk).

What Are Hybrids? What Are the Possibilities?

True Hybrids are embryos formed when the gametes (egg and sperm) are from different species. For example a human/chimp hybrid would be formed from the combining of a human egg with a chimpanzee sperm, or vice versa. These true hybrids create a new entity or species. One familiar example brought about by breeding is a mule, which is produced from horse and donkey gametes. In nature animal/animal hybrids tend to be less fit than their parents. Experiments to combine human and animal gametes have not been successful.

Cybrids are formed when the nucleus of an egg from one species is removed and filled with the nuclear material of another species. This mimics the technology of cloning, except one is using nuclear material from one species and a cell from a different species. The term *cybrid* comes from the combination of "cytoplasmic hybrid" because the genetic material in this new embryo is 99.9% of the nuclear species and 0.01% of the species that donated the egg [Michael Cook, "Soft Cell: How Scientists Are Easing away Opposition to Animal-Human Hybrids" *Salvo*, Issue 4, Winter 2009]. Most genetic material is found in the nucleus, but a little bit is left in the cytoplasm of the egg. Scientists have been able to insert human genetics (a nucleus) into a cow's egg (an enucleated egg). The resulting embryo survived for twelve days. Other experiments have involved inserting human genetic material into a frog's egg and into a rabbit's egg. Neither of these survived beyond a week and never reached the blastocyst stage.

Chimeras (kī-'mir-uhz) are formed when the cells of one species are added to the embryo of another species. This results in an animal that has distinct parts from one species or the other. Think of the centaur in fantasy fiction. Fictional centaurs exhibit distinct parts that are human and distinct parts that are horse. This has actually been done in the lab with a goat and sheep. The resulting animal did survive and had distinctive goat legs and a distinctive sheep head.

Transgenic embryos are created by adding a few genes from one species into the embryo of another species. However, only a few genes can be added before the embryo collapses, providing self-limitations for this technique. Scientists have inserted human genes into pigs to create human insulin for diabetes patients. Scientists have also attempted to replace damaged human heart valves

with animal heart valves. This is using animal parts in a mechanistic sense, and is known as *xenotransplantation*.

Although the media and legislation discuss human/animal hybrids, they are really talking about human/animal cybrids. While there are examples of hybrids in nature, thus far all experiments with human/animal hybrids have proven unsuccessful, even using *in vitro* fertilization technology.

Is This Legal?

Very few countries have passed specific legislation pertaining to any kind of combination of human and non-human material. Most laws either single out humans or animals. However, several recent initiatives have been discussed:

- **Council of Europe: *Embryonic, Foetal and Post-natal Animal-Human Mixtures, Doc. 10716*** (October 11, 2005)—This document encourages the participating states to consider the ethical ramifications of creating human/animal hybrids, and also encourages the formation of a steering committee within the Council of Europe to address these ethical issues.
- **Canada: *Assisted Human Reproduction Act 2004*** —This act prohibits the creation of a chimera or a hybrid and prohibits the transfer of a chimera or hybrid into a human being or a non-human life form.
- **USA: *Draft Human Chimera Prohibition Act of 2005 (S.1373)*** —This draft, introduced by Senator Sam Brownback, would prohibit “any person to knowingly, in or otherwise affecting interstate commerce: (1) create or attempt to create a human chimera; (2) transfer or attempt to transfer a human embryo into a non-human womb; (3) transfer or attempt to transfer a non-human embryo into a human womb; or (4) transport or receive for any purpose a human chimera.” In this case, some hybrids would fall under the category of chimera.
- **United Kingdom: *Human Fertilisation and Embryology Act (1990)***—This legislation states that the creation of human/animal entities would exist in a “legal vacuum” and hybrids could be formed if a proper license is obtained. The importance of this act is the fact that it makes it unclear whether the human/animal entities fall under human or animal legislation.

What Are the Consequences of Using This Technology?

Legal Consequences

There are several legal issues to consider, but probably the most troubling is whether the entity produced should fall under human or animal legislation. Several questions follow this, such as “What percentage of the being needs to be human to fall under human legislation? What if the human/animal entity began as 30% human and 70% animal, but the human cells grew faster and the entity ended up being 70% human and 30% animal?” Dr. MacKellar preferred erring on the side of caution and giving the entity the protection and dignity entitled to a human being, however this is only a protective declaration and does not solve the myriad legal issues surrounding the creation of this new entity.

Societal Consequences

The formation of an entity that is both animal and human raises questions of personhood and challenges our definition of humanness. These beings will inevitably be met with challenges that go beyond identification with a minority group. Would protections such as the Fourteenth Amendment

apply to these creatures, and how human would they have to be for them to possess rights and privileges? Would society want to grant them rights and privileges? Would the military want to create a human/ape hybrid soldier in hopes that they would be bigger, stronger, and easier to feed? Given human history, the temptation to relegate these beings to a lower class would be inevitable.

There are risks associated with diseases that may cross the species barrier. As Dr. MacKellar pointed out, we have several examples of diseases crossing the species barrier including HIV, swine flu and bird flu. We also know that these diseases can sometimes be more harmful or even fatal to one species than they were to another. If an entity is part human and part animal, and a disease is very contagious among either type of animal it shares characteristics with, it will likely infect the hybrid. At this point, the disease may adapt to human DNA, posing a great health threat to all humans, not just hybrids.

Do Hybrids and Cybrids Have Souls?

I believe, from a biblical perspective, the creation of hybrids, cybrids, and chimeras is unethical. However, some instances of transgenic technology, namely *xenotransplantation*, may be ethical, especially since there are built-in biological limitations regarding how many genes can be inserted into another species.

Do these procedures violate the sanctity of human life? Several thoughts:

- Humans are created in God's image (Gen 1:26);
- We were created separately (Gen 1:25, 26). We were created differently than the animals ("Let the earth bring forth living creatures..." Gen 1:24; "then the Lord God formed the man of dust from the ground and breathed into his nostrils the breath of life, and the man became a living creature" Gen 2:7);
- We humans were given dominion over the animals (Gen 1:29, 30). Therefore, these procedures do seem to violate the sanctity of human life as revealed in Scripture.

Are scientists attempting to bridge the gap in created kinds?

God directly created animals according to their kind, and it is implied in the flood account that He intended for them to reproduce according to their kind (Gen. 1:21; Gen. 8:17).

The Bible indicates that man has dignity and worth. If we try to create a being that might be less-than-human by combining it with animal cells or gametes, this would diminish such God-given qualities. It is from a naturalistic perspective that people believe animals are better than man because they seem to be stronger, faster, or heartier. This is not the Biblical perspective.

Do these procedures have something in common with bestiality?

One could argue that the creation of human/animal hybrids may constitute an instance of bestiality. Biblically, bestiality is a type of fornication with animals; it is a type of intimacy that perverts the real intimacy that God designed between a husband and wife. I find bestiality to be a particularly distasteful subject, and perhaps we get an indication of God's distaste for this since it is a sin that was punishable by death (Ex. 22:19; Lev. 18:23; Lev. 20:15, 16; Deut. 27:21). Procreation and consummation are not distinctly separate in the Bible. It is only through modern technology that procreation can occur in the laboratory apart from consummation. I think an argument could be made that procreation with human and animal gametes is a connection with animals that man was not meant to experience.

But what about...?

This article is a short report on hybrids and variations on combining human and non-human species, but we have not even discussed the multiple questions that arise from this type of experiment, such as:

- Why are scientists doing this?
- What are the implications for common descent if human and animals can breed?
- How does this affect the definition of species?

Also, I did not really deal with whether hybrids have souls or not because we just don't know. Personally, I think it will be biologically impossible to create a true human/animal hybrid, but cybrids may be a possibility. I think that, much like clones, a cybrid that grows beyond the embryonic stage would be very unstable and unhealthy as well as incredibly expensive and inefficient to make. And much like clones, I can't answer if they would have a soul.

I am thankful for groups like the Scottish Council on Human Bioethics for addressing this topic in secular language within the public square, but with an underlying Biblical perspective. It is groups like this that enable us to interact in a well-informed way in our places of influence. Whether it is voting for legislation or simply talking with our friends at Starbucks, you don't have to work for the Council of Europe to champion the Biblical perspective within the public square.

You can find Dr. MacKeller's full report on the Scottish Council of Human Bioethics Web site: www.schb.org.uk.