

TIMOTHY MOSTELLER

ARISTOTLE AND HEADLESS CLONES

ABSTRACT. Cloned organisms can be genetically altered so that they do not exhibit higher brain functioning. This form of therapeutic cloning allows for genetically identical organs and tissues to be harvested from the clone for the use of the organism that is cloned. “Spare parts” cloning promises many opportunities for future medical advances. What is the ontological and ethical status of spare parts, headless clones? This paper attempts to answer this question from the perspective of Aristotle’s view of the soul. Aristotle’s metaphysics as applied to his view of biological essences generates an ethic that can contribute to moral reasoning regarding the use of headless spare parts clones. The task of this paper is to show the implications that Aristotle’s view of the soul, if it is true, would have on the ethics of headless, spare parts cloning.

KEY WORDS: Aristotle, cloning, metaphysics, soul, spare parts clones

INTRODUCTION

“Scientists create headless frog embryos in laboratory.” So read a brief Associated Press article on the back page of the local newspaper on Sunday, October 19, 1997. The article stated that British scientists have been able to manipulate the genetic structure of a developing frog embryo so as to prohibit the growth of the frog’s head. The article made guesses at how such a technique might be used to clone genetically identical headless humans for organ transplants. Such headless clones “without a brain or central nervous system. . . may not technically qualify as embryos.”¹ If it is true that such headless clones would not be human embryos, experimentation on them, or harvesting organs from them, would not involve harming a human embryo. Even advocates of a strong view of personhood, could not complain that any human being at an embryonic stage would be harmed if its organs were harvested. The task of this paper is to show the implications that Aristotle’s view of the soul, if it is true, would have on the ethics of headless, spare parts cloning.

In this presentation, I will answer four questions: (1) Would Aristotle believe that clones have souls? (2) Would Aristotle believe

that headless human clones have souls? (3) Would Aristotle believe that headless spare-parts cloning is virtuous? (4) Is Aristotle's metaphysics of soul and the ethics which follow from it plausible?

DO CLONES HAVE SOULS?

The first puzzle for an Aristotelian account of the metaphysics of headless clones is the ontological status of clones. A human being as a biological organism is a substance, a composite entity of matter and form or body and soul. The key element of this composite, for the purposes of this paper, is the soul. The soul makes the matter to which it is connected into a specific kind of matter. In the case here, the soul makes the human body to be a body of a particular kind of primate. In broad terms the soul, according to Aristotle is "a substance in the sense of the form of a natural body having life potentiality within it,"² or put another way, soul is a "substance in the sense which corresponds to the account of a thing . . . it is what it is to be for a body of the character just assigned."³ If this is what the soul is (this definition will be elaborated below), the question is how do human beings come to have souls? It seems to me that Aristotle believed that the soul branches off or is propagated by the organism's parents. If this is correct, then clones (which are simply latter-day twins) would come to have their souls in the same way that identical twins have their souls. Through the totipotentiality of each cell, clones, like latter-day twins obtain their soul from the parents of the cloned organism.

In the *Generation of Animals*, Aristotle states, "As no part [of the body], if it participate not in soul, will be a part except homonymously (as the eye of a dead man is still called an eye), so no soul will exist in anything except that of which it is a soul; it is plain therefore that semen both has soul, and is soul, potentially."⁴ This would relate to cloning by somatic cell nuclear transfer in the following way. The nucleus of the somatic cell, which is removed for implantation into the egg, ceases to be a nucleus of that cell (it is one only homonymously). It has soul or is soul, now only potentially. A new soul comes into being when the chemical-electrical reaction for stimulating the nucleus of the new cell is complete, and the new cell begins to follow the same gestational process as a normal embryo. The soul of the clone comes into being at the time of the "artificial conception" of the clone, just as the new soul of a regular embryo comes into being at

the time of natural conception. So, I think that Aristotle would maintain that clones would have souls, and that they are passed on to them by the parents of the organism being cloned, and they come into being at the time of artificial conception.

ARE HEADLESS CLONES HUMAN?

One might think that a headless clone doesn't have a soul, because it just isn't the same kind of organism as the full-headed organism. There are humans, which are one kind of thing, and then there are headless humans or "Ichabodies" which have no soul.⁵ Aristotle, I believe will maintain that Ichabodies have souls, and are the same kind of being as full headed human beings.

Aristotle might argue for his view through his account of potentiality and actuality. One kind of potentiality, according to Aristotle, is "the principle of change in the very subject that is affected, causing this subject to be affected by the agency of another thing."⁶ It is the potentiality that a thing has to be subjected to change by something outside of itself; this is the kind of potentiality that is had by artifacts. The second kind of potentiality is the kind of potentiality that a thing has to change itself, and is had only by substances or souls.⁷ When individual members of natural kinds (beings with souls) act, they do so as both patient and agent. They fully have potentiality in both senses.

Once Aristotle establishes the concept of potentiality in natural kinds, he moves to show the absurdities of thinking that a natural kind can *not* have a property in a potential way. He shows the absurdities of thinking that an object cannot have a property unless it is now having that property (*Metaphysics*, Book IX). He argues by analogy using the example of a builder. One could claim that a builder only is a builder as long as she is building, and does not have the art of building when she ceases to build. So the art is gained and lost, gained and lost. This view is absurd. As Aristotle states, "If that which is deprived of potentiality is incapable, that which is not now happening will be incapable of happening; but he who says of that which is incapable of happening that it is or will be, will say what is untrue."⁸ So, if something is to have a certain property, necessarily it will have that property in a certain mode of potentiality, before it is had in an actual mode. Aristotle makes this clearer when he states, "A thing is capable of doing something if there is nothing impossible

in its having the actuality of that of which it is said to have the capacity.”⁹ (I take capacity here to be roughly synonymous with potentiality.)

Although Aristotle does not explicitly set up the issue in this way, it is consistent with his ideas of potentiality to say that when a member of a natural kind has a potentiality, what it has is an instance of a property in a certain sort of mode; the mode of potentiality. This differs from the mode of having an instance of a property in actuality, not in virtue of whether or not the property is instanced in the subject, but rather in the mode that the property is manifest in the subject.

Here is the beginning of an answer to the questions about the headless clone. A member of a natural kind “human” is capable of being a full-headed human if there is nothing impossible in its having the actuality of full-headedness which the human soul has as a capacity. The property of being full-headed can be present in the mode of potentiality even if that property is not actualized at a given time. The clone, even though not actually full-headed has the property of being full headed even though it is had in potentiality. Perhaps it would be better to say that the clone actually has the property of having the *capacity* to be full-headed.

In chapter four of *Metaphysics IX* (Theta) Aristotle spells out more precisely the nature of the relationship between a subject (a natural kind with a soul) that exists, and the properties that are in potentiality had by that subject. He argues that if two things are related in this way, call this the relation of potentiality, then if one *is* the other also must be. If a subject that has a property in potentiality actually exists, then the property in potentiality must also be. Thus for any *y*, if *y* enters into the relation of potentiality with some *x*, then if *x* exists, then *y* must also exist. What the notion of the potentiality relation brings out is that if a subject is of such a kind that it has a property in the mode of potentiality, when the subject (i.e., natural kind) comes to exist, then the property in the mode of potentiality also comes to exist.

There is a specific relevance of the notion of the potentiality relation to the part/whole relations that are had by members of natural kinds in virtue of their souls that needs to be brought out here. Aristotle states in *Metaphysics VII*, chapter 10:

And since the soul of animals (for this is the substance of all living beings) is their substance according to the formula, i.e., the form and the essence of a body of a

certain kind. . .therefore the parts of soul are prior, either all or some of them, to the concrete animal, and similarly in each case of a concrete whole; and *the body and its parts are posterior to this its substance*. . .¹⁰

It seems reasonable to conclude from this passage that the soul of an animal is what gives the member of a natural kind (i.e., the matter/form composite) all of its properties, those had in the mode of potentiality and those had in the mode of actuality. The soul is also prior to both the concrete animal and all of its parts. Thus, through the animal's soul, the whole animal and all of its parts are fully present even before those parts *qua* potentialities have been realized through the matter which the soul is informing. While the body and its parts are actualized posterior to the existence of the composite substance, it would be consistent with Aristotle to say that the whole body and all of its parts are fully present in potentiality by means of the soul when the substance (matter and form composite) comes to exist. Thus, if the soul exists, then the body of a certain kind and all of its parts (which actually exist in the mode of potentiality) must also exist.

Aristotle does seem to give some qualification regarding the logical priority of the soul to the body.¹¹ He states that there are some parts that are "neither prior nor posterior to the whole, i.e., those which are most important and in which the formula, i.e., the substance, is immediately present, e.g., perhaps the heart or the brain; for it does not matter which of the two has this quality."¹² One might claim that this passage means that Aristotle does not view the soul as being absolutely prior to the body, and thus not the kind of thing that would have potentialities within it. But this does not follow.

The context of this passage indicates that there are some *physical parts* of an organism in which the form or soul express themselves in an immediate way. Aristotle believed that these parts of the body were such that they were not prior to the soul (no bodily parts are) nor posterior to it, unlike some parts of the body which are posterior to the soul. The emphasis here is on the non-posterior nature of some parts of the body. This does not mean that the soul is identical with these non-posterior parts. It simply means that some parts of the body, e.g., the brain or heart, simply come into being with the instantiation of the soul, immediately, not prior to it and not after it, but with it. This seems fairly obvious for cases of the coming into being of a new member of a particular natural kind. In order to come into being matter must be informed with the form, but the immediately formed matter necessarily

brings with it the exemplification of the soul, which is logically prior to the un-informed matter. So, Aristotle simply means that the soul is logically prior to, the body, and that some parts of the body come into being with, neither prior to nor posterior to, the instantiation of the soul in matter.

This seems to strengthen the interpretation being made here regarding the un-actualized presence of a head or brain of a headless clone. The soul of the cloned organism, headless or not, is the same kind of thing existing with latent capacities prior to its instantiation in matter. When it is instantiated it is simply unable to actualize its latent potentialities in the matter it is informing. The brain cannot come into actualization co-temporally with the soul. This does not imply that the soul does not have the capacity to inform matter in such a way so that it could express this potentiality. It simply means that it is unable to do so due to restrictions in the matter.

Application of this sort of argument to the case of the headless clone seems straightforward. It is the human form or soul that is logically prior to the body, and the matter that is informed by the human form enters into the relation of potentiality with the form. There is a relationship between the human form and the material informed by the human soul that makes the parts of the human such that if the form exists in some matter, then the human body and all of its parts must also exist. From this it can be inferred that the individual human parts are related potentially to the human body insofar as it is a whole informed by the human soul. Thus, if the human body *qua* whole exists, then all the parts of the whole must also exist.

However, in the case of the headless clone, the head doesn't exist as actualized. The having of a head is a property in potentiality that is had by the clone as the subject of that property. It is possible for the head to be actualized, and so the head does exist, but only as a potentiality in the human substance. It is actually true of the headless clone that it has the property of having a head, but it has this property in potentiality. The clone actually has a head, in the mode of potentiality. It has a head in potentiality, but not yet in actuality. If Aristotle means that potentiality and actuality are modes of being, or modes of having a property, then a clone can have a property of having a head in actuality, or in potentiality. If this is a correct analysis of Aristotle's view of potentiality and actuality as related to being, it is just the tinkering of the geneticist that prohibits one of the clone's properties that exists in potentiality from existing in actuality.

To sum up, Aristotle, in the *Physics*, maintains that when a natural kind comes to be, it does so in virtue of its form. He states, “the shape [form] is the nature.”¹³ The actuality of an informed natural kind is tied into the very existence of the thing. The thing’s existence just is its being this exact sort of informed matter packed full of potentialities. The unfolding of potentialities is the actualization of what is already present. Since the source of the actualization of the potentialities is in the thing itself, the thing itself already is and has all of its properties existing in potentiality. All of these properties can move from existing in potentiality to existing in actuality given the right conditions. However, it is the actuality of the whole natural kind that is prior to the realization of all of its potentialities.

What are the implications for the answer to the question raised as the title of this section: Are headless clones human? The answer is that when a human being comes to be it comes to be as a full member of its kind, regardless of the actualization of the potentialities that are had within it. A cloned embryo that had been genetically altered so that the head and brain function could not be actualized would still be the same kind of thing as a non-altered embryo.

One objection here is that the brain is necessary for proper actualization of rational capacities, which according to Aristotle is an essential property of being human. Since the brain is not actualized, rationality cannot be actualized, and so headless embryos would not be human. This might be the case if Aristotle did not maintain the key distinction between potentiality and actuality as discussed above. It is not the *expression* of rationality that makes an organism human, it is *being the kind* of organism that has the capacity to express rationality that makes an organism human. Headless cloned embryos are the kinds of organisms that have that capacity due to the presence of the human soul. They are fully human.

A few things need to be said about several related passages from Aristotle’s *De Anima*. One passage relating soul to the potentiality-actuality distinction is found in Book II of the *De Anima* where Aristotle states,

Hence the soul must be a substance in the sense of the form of a natural body having life potentially within it. But substance is actuality, and thus the soul is the actuality of a body...¹⁴

He goes on to state,

For the actuality of each thing comes naturally about in that which is already such potentially and in its appropriate matter. From all this it is clear that the soul is a kind of actuality and principle of that which has the potentiality to be such.¹⁵

It is clear from these two statements from Aristotle, when the soul comes to instantiate itself in some matter, the whole organism as a complete, full, and actual member of its natural kind having that particular soul comes to be.

He indicates that when the soul comes to be instantiated in some matter it is “the cause or source of the living body,” the source or origin of movement, the end, and the essence of the whole living body.¹⁶ The soul causes the movement; it causes the form to fully actualize its latent potentials as its end. Thus, the human soul is what moves it to realize its form, and is the cause of the form actualized in the body. The human that lacks a head actually has a complete human soul. This person has been kept from realizing one element of its form as exemplified in the specific aspect of its body, namely its head.

There are, according to Aristotle two types of potentiality.¹⁷ Where an entity, *e*, has a potentiality *p*, for quality *q*, in one of two ways. *e* can have *q* in *p*₁ potentiality. Having *p*₁ potentiality means that *e* “falls within the class of beings” that have *q*.¹⁸ This is to say that *e* has *p*₁ because *e* is a being of a certain kind or *e*’s “matter is such and such.” Or, *e* can have *q* in *p*₂ potentiality. Having *p*₂ potentiality means that *e* “possesses” *q*. Here *e* has *p*₂ because *e* itself can actualize *q* if *e* wants to, and “if nothing external prevents” *e* from so doing.¹⁹

These two senses of potentiality would apply to a headless organism in the following way. The genetically altered organism would not have potentiality in the sense of *p*₂. It would not itself be able to actualize the capacity of having a head, primarily because something external to it is preventing it from doing so. But this organism would have potentiality in the sense of *p*₁. It still falls within the kind of things that do have heads.

The interesting thing to note here is the ontological dependency between *p*₁ and *p*₂. *p*₂ is ontologically dependent upon *p*₁. An entity cannot have potentialities that it is able to actualize by its own powers if it is not already the kind of thing that can actualize those potentialities. In one sense, *p*₂ is a potentiality, because the quality in question is had by the entity in question, but simply unactualized due to the entity’s failure to actualize it. In another sense *p*₂ is an actuality of the *p*₁ potentiality had by *e* in virtue of its being a specific kind of thing. The “kindness”

or essence or soul is logically prior to all potentialities and actualities. So even though our headless clone isn't able to actualize the capacities that come with the actualization of full-headedness, the clone still has p_1 which, necessarily has within it the potentiality for p_2 .

It is interesting to note that Aristotle maintains that the body exists for the sake of the soul. He states, "...all natural bodies are instruments for the soul. . .showing that they exist for the sake of the soul."²⁰ Thus, the human body and all of its potential parts exist for the sake of the human soul. This strongly indicates that all bodily parts can be understood only in light of the soul which is actually prior to the parts and all of the parts exist for the sake of the realization of the whole. This can even be applied to human genes. They exist as parts which are for the sake of the whole qua human soul. Even the genes of a human being are tools used by the human soul for the sake of actualizing the bodily potentialities latent in the human substance.

So how would Aristotle answer the questions with which we started? First, Aristotle would say that, yes, headless human clones are actually human. They are fully human beings that have one important bodily part that still actually exists in potential in the headless human itself, namely the potential to form a human head. Second, Aristotle would think that a headless human clone does in actuality have a complete human soul. The human qua whole substance came into existence with its full human form informing its constituent matter. The human soul then is actual, and complete, even though one of its actual potentialities has been prohibited from being actualized.

IS HEADLESS CLONING VIRTUOUS?

I think that the answer for Aristotle to the question of whether headless cloning is virtuous would be a clear, "No." The main reason has to do with Aristotle's view of happiness. In the *Nicomachean Ethics*, Aristotle argues that human happiness is rational activity of the soul that expresses virtue.²¹ A headless clone, on Aristotle's view, just can't be happy. While she is the kind of being that could be happy, she is not happy because she cannot actualize her latent capacity to be happy. A headless clone can't move ahead towards happiness, because she can't actualize her head.

But the question is how did she get that way? How did this human being get into a state such that she could not become happy? Someone put her into that state. Someone *made* her unhappy. So,

now what you have is one person (a scientist) who is intentionally making someone else (a headless human clone) unhappy. If happiness consists in doing the kind of scientific research for the purpose of creating headless human clones (regardless of the reason for doing so), then happiness consists in creating unhappiness. The concept of happiness being or producing unhappiness is absurd. So, on an Aristotelian metaphysics and ethics, headless, spare part cloning is not virtuous, because it creates human beings who cannot be happy.

IS ARISTOTELIAN METAPHYSICS OF SOUL PLAUSIBLE?

There is a tight connection between Aristotle's ontology of soul and his ethics. One major objection to the ethical ramifications of this psychological ontology is that Aristotle's account of the soul is just false. It is inconsistent with scientific-biological naturalism (and even more broadly, philosophical naturalism). This is the view that all accounts of the nature of reality, including what it means to be human are reducible to the categories of the "hard" sciences, especially physics. It is very clear that Aristotle's account of the soul is inconsistent with naturalism, and so in order to defend Aristotle's view against this broad objection, one must give an account of the plausibility of Aristotle's account of the soul vis-à-vis naturalism. I will not give a detailed argument for the plausibility of the plausibility of Aristotle's view here, but I would like to propose how one might answer this objection through a kind of abductive argument for Aristotelian substance dualism.

Here is what has been proposed by recent defenders of a type of Aristotelian substance dualism.²² We can take three major phenomenal features of human existence, and compare two ontological models in order to see which model best explains the evidence. Here are the three evidences that have been suggested:

1. The unity of myself, my rational (putatively non-physical/mental) parts and bodily parts at a given time.
2. The apparent unity of myself, across time and change.
3. The apparent freedom of my will.

What I am suggesting is that a naturalistic/physicalistic model and an Aristotelian substance dualistic model should be constructed, and these two models should be compared in their explanatory power of

accounting for these three phenomena of human life. I believe that the Aristotelian substance dualistic model is the one that can make the most sense of these phenomena. Only if this is right, can Aristotle's view be made plausible by serious moral inquirers...at least those of us fortunate enough to have a good head on our shoulders.

NOTES

¹ Associated Press, "Scientist Creates Headless Frog Embryos in Laboratory," in *Miami Herald* (October 17, 1997), p. 26A.

² Aristotle, *On the Soul*, 412a 20.

³ Aristotle, *On the Soul*, 412b 10.

⁴ Aristotle, *On the Generation of Animals*, 735a 5. While Aristotle's biology is outdated, this should not stand in the way of the metaphysical point that is being made.

⁵ H. Peter Steeves, "Ichabodies," in *Conscious Choice*, Online edition, <http://www.consciouschoice.com/culture/ichabodies1310.html>. October 2003.

⁶ Aristotle, *Metaphysics*, 1046a 11.

⁷ Aristotle, *Metaphysics*, 1046a 17.

⁸ Aristotle, *Metaphysics*, 1047a 11–13.

⁹ Aristotle, *Metaphysics*, 1047a 23–34.

¹⁰ Aristotle, *Metaphysics*, 1035b 15–18.

¹¹ This possible line of criticism was pointed out to me by an anonymous referee.

¹² Aristotle, *Metaphysics*, 1035b 25.

¹³ Aristotle, *Physics*, 193b 16–17.

¹⁴ Aristotle, *On the Soul*, 412a 19–22.

¹⁵ Aristotle, *On the Soul*, 414a 24–28.

¹⁶ Aristotle, *On the Soul*, 415b 8.

¹⁷ I would like to thank an anonymous referee for pointing out this distinction.

¹⁸ Aristotle, *On the Soul*, 417a 25. Aristotle uses the locution "falls within the class of beings" to mean that one is a particular "kind" of being or to mean that one's "matter is such and such." If this locution were to be understood in terms of the necessary and sufficient conditions for membership in a set, it might be question begging when trying to determine the nature of a particular entity. To avoid question begging, one might appeal to the concept of "natural kinds," which doesn't require a specification of necessary and sufficient conditions for membership in a species or class of beings. It simply requires that some entities have essential properties which can be specified extensionally rather than intensionally. I believe that the use of natural kinds concepts is assumed, but not defended by Aristotle in this passage. A full defense of this concept is beyond the scope of this paper.

¹⁹ Aristotle, *On the Soul*, 417a 25.

²⁰ Aristotle, *On the Soul*, 415b 18–20.

²¹ Aristotle, *Nicomachean Ethics*, 1098a 10–15.

²² See J.P. Moreland and Scott Rae, *Body and Soul*, (Downers Grove, IL: InterVarsity Press, 2000).

REFERENCES

- Aristotle. "Metaphysics." In *Aristotle: Metaphysics X–XI*. Translated by Hugh Tredennick. Boston: Harvard University Press, 1982.
- Aristotle. "Metaphysics." In *The Complete Works of Aristotle Volume I*. Edited by Jonathan Barnes. Translated by W.D. Ross. Princeton, NJ: Princeton University Press, 1984.
- Aristotle. "On the Generation of Animals." In *The Complete Works of Aristotle Volume I*. Edited by Jonathan Barnes. Translated by A. Platt. Princeton, NJ: Princeton University Press, 1984.
- Aristotle. *On the Soul. The Complete Works of Aristotle*, Volume I. Edited by Jonathan Barnes. Translated by J.A. Smith. Princeton, N.J.: Princeton University Press, 1984.
- Aristotle. "Physics." In *Aristotle: Selections*. Translated and edited by Terence Irwin and Gail Fine. Indianapolis, IN: Hackett 1995.
- Moreland, J.P. and Scott Rae. *Body and Soul*. Downers Grove, IL: Intervarsity Press, 2000.
- Steeves, H. Peter. "Ichabodies." In *Conscious Choice*, October 2003.

Department of Philosophy
Biola University
13800, Biola Ave.
La Miranda, CA 90639
USA
E-mail: timothy.mosteller@biola.edu