

Embryology Research since 2000

(a talk given by Fr James at Our Lady, Star of the Sea, Weymouth, Dorset on 5th June 2008)

Fr Dylan James was recently awarded a Doctorate in Bioethics at the Alphonsianum, one of Rome's Pontifical Universities. He is currently the Parish Priest for St Edwards Church, Shaftesbury, and lectures at Womersley seminary

His talk was divided into 3 sections

Modern science and the embryo and the first 14 days

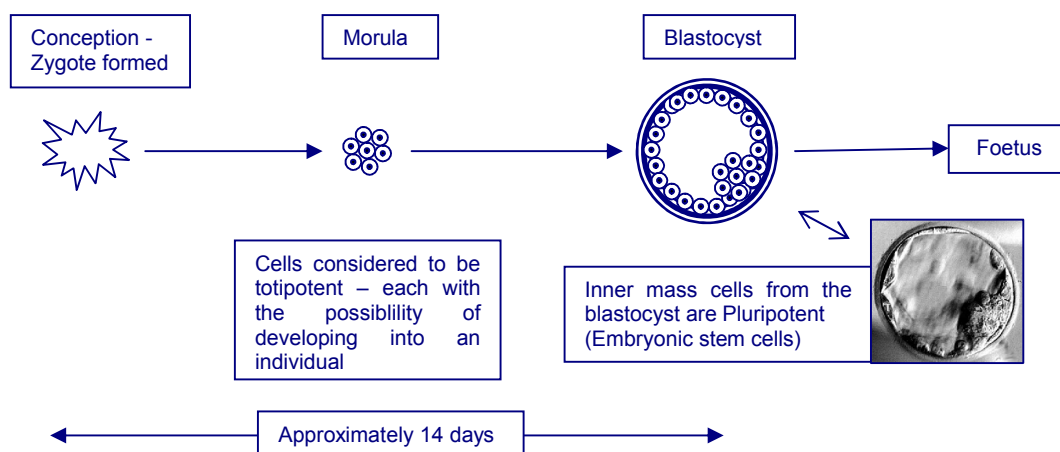
Does the end justify the means?

Hybrids and chimeras – monsters

The understanding of Embryology before 1990

The scientific data at the time of the Warnock report in 1984 considered the embryo in its early days of development to be a cluster of undifferentiated cells, each cell being totipotent – i.e. if separated from the cluster it was thought each cell was able to develop into a person separately, though many of the cells would develop into extra embryonic matter (for example into the placenta).

There was also the problem of monozygotic twins (i.e. identical twins from the same original sperm and egg). The morula can divide to produce twins (or triplets or more) and this in itself was considered strong evidence against 'personhood' that at the early stage. In the words of Fr Joseph Fuchs SJ 'a divisible person is a nonsensical concept'.



Embryonic stem cells are thought to have the potential to provide cures for various diseases and also regenerate organs in the body. But ripping out the pluripotent cells always destroys the embryo, and as we will see later, the results have so far been negative.

The Human Fertilisation and Embryology Act of 1990

The Human Fertilisation and Embryology Act of 1990 allowed experimentation on human embryos up to 14 days. Then they have to be destroyed, due to the appearance of the primitive streak. The primitive streak shows the position of the developing human backbone, and its formation was taken to be the indication that definitive **cell differentiation** had occurred.

A significant part of the justification behind the Act was the theory that human cells were undifferentiated until this 14-day point, so there was no human “individual” present. The early embryo or “morula” was merely a group of undifferentiated or “totipotent” cells. **Since 1990 embryonic research has shown that this earlier semi-official view is inaccurate.**

Prior to the 1990 Bill, the pro-life argument to the official view was that at fertilisation cell division began working to a human genetic “blueprint”. So right from the beginning the embryo was showing a tendency to cell differentiation.

Embryonic research 1990 to the present day

Embryonic research post-1990 is now are backing up the pro-life argument. (A lot of this knowledge has arisen from study of mouse and sheep embryos, though ironically also from work on human embryos after the passing of the HFE Act in 1990). It has now been discovered that embryonic cells are not as “totipotent” (power to become anything) as once thought. The cells in the morula relate to one another, hence differente between themselves. The position of a specific cell in the morula determines its subsequent development into an organ of the body.

For example, the position of an embryonic cell within the egg membrane is determined by the position of the sperm at entry. The axis of the future backbone is determined at this time, within 1-3 minutes after penetration.

Even at the 2-cell stage, the evidence points to one cell having the potential for producing the placenta, amniotic fluid and the umbilical cord. The other cell will become the embryo and foetus. **So there is a closed differentiating system and it is human.**

This differentiating closed human system is a human individual at an early stage in its development. It is a human individual with potential. It is one continuum with the later rational human adult.

The next logical step is to propose that, as the later rational human adult is a “person”, so too is the embryo and the later foetus. Human persons have rights, so too has the human embryo and the foetus. **There is a right to life.**

Father Dylan pointed out that, if despite the supporting scientific evidence, there is still residual doubt in one's mind over the status of the human embryo, then we must go for the moral certainty principle; we cannot risk murder. **We must play safe and support the human embryo.**

In spite of the promises made by the proponents for the use of embryonic stem cells, that research globally has not provided any cures.

Specifically, there have been uncontrollable tumours produced in the bodies of unfortunate people who were chosen for such treatments. Also the body's immune system can reject them – hence the interest in cloning

The use of “Adult” Stem Cells (non-embryonic) from bone marrow, fatty tissue and amniotic fluid had produced positive results for:

- Heart disease.
- MS.
- Spinal cord injuries.
- Sickle cell anaemia
- Leukaemia treatments in children.

The use of these stem cells does not pose ethical problems.

Father Dylan pointed out that in the ethical system of the Catholic Church, the end does not justify the means. **Any possible benefits cannot justify our supporting evil means.** In this case we cannot support the experimentation and destruction of human embryos, in the hope that future cures for human illness will result.

Human-animal hybrids (Chimeras)

Turning to the question of human-animal hybrids embryos (chimeras - admix embryos as the proponents like to refer to them), Fr Dylan reminded us what a hybrid is. A hybrid has the same DNA mix in every single cell in the body. A good example is a mule, a cross between a horse and a donkey.

He said that scientists were creating hybrids, clones or chimeras, as a source of stem cells or later as a source of spare parts for organ donation

He asked if we create a human-animal hybrid what is the result?

Is it a product for someone else to benefit from/

Or it is a person – a good to whom the only proper attitude is love.

He quoted the late Pope John Paul II , as Karol Wojtyla in his book 'Love and Responsibility' :

“A person is a kind of good which does not admit of use, and cannot be treated as an object of use, and as such a means to an end”

Father Dylan challenged us to reconsider our attitudes to hybrids and chimeras. We should not look on them as “monsters”. As the hybrid and chimera embryos will contain human DNA there is every reason to think that such creatures will be beings of a rational nature, i.e. ‘persons’, and thus be worthy of respect and worthy of human rights.