A future dinner party

Step forward to a dinner party in 2025. Your hostess warns you that the tomatoes are the new cholesterol reducing ones. Your host grumbles as he eats only organic food. Your gay neighbour tells you how his clone (should you think of it as his son or brother?) is doing at school. Somebody mentions the amount the Smiths have paid to make sure their next daughter has blue eyes. Wouldn't it have been better spent on making her musical? Somebody jokes about the couple who could have had a Margaret Thatcher clone but instead chose a Bill Clinton. On the drive back, the headlines are about attempts to raise the retirement age to 95. ('Perfect?', The Economist, 14 April 2000, page 15)
Paralysed Reeve blames Bush and Catholic church for his plight

- Christopher Reeve says he could have been close to walking again today were it not for the Bush‘s capitulation to the RC church over cloning
- "We've had a severe violation of the separation of church and state in the handling of what to do about this emerging technology,"
- He is "angry and disappointed" that President Bush has obstructed developments in therapeutic cloning and stem cell research which might have led, by now, to human trials aimed at rebuilding the nervous systems of quadriplegic people.
- "There are religious groups - the Jehovah's Witnesses, I believe - who think it's a sin to have a blood transfusion. Well, what if the president for some reason decided to listen to them, instead of to the Catholics, which is the group he really listens to in making his decisions about embryonic stem cell research?" Reeve says. "Where would we be with blood transfusions?"
Is religion holding us back?

- “You may eat the fruit of any tree in the garden, except the tree that gives knowledge of what is good and what is bad.” (Gen 2:15-17)

- “Now then, these are all one people and they speak one language; this is just the beginning of what they are going to do. Soon they will be able to do anything they want! Let us go down and mix up their language so that they will not understand each other.” (Gen 11:1-9)

- Religion “prevents our children from having a rational education … religion prevents us from teaching the ethic of scientific co-operation in place of the old fierce doctrines of sin and punishment. It is possible that mankind is on the threshold of a golden age; but if so, it will first be necessary to slay the dragon that guards the door, and this dragon is religion” (Bertrand Russell)
What are the ethical issues?

• Reproductive Human Cloning
• Therapeutic Cloning – Treating Genetic disorders – Creating Spare Parts
• Genetically Modified Organisms – Food – Animals – Humans
• Patenting Genetic sequences
• Genetic information rights
Some Key Questions

• Is genetic engineering 'playing at God' or is it an exercise in valid scientific freedom?
• Should cloning technology be used to determine features of our children?
• Should the technology be used to help infertile couples to reproduce?
• If world hunger could be cured by genetically engineered crops, would it be right to do so?
• Would you be happy knowing that you were the clone of a parent?
• If I know I have a genetic disposition to heart failure I be required to disclose this to by insurance company?
• Who has the right to know my genetic information
A sheep called Dolly

24 February 1997, Ian Wilmot & co at the Roslin Institute near Edinburgh announced that they had cloned a lamb named Dolly.

Media Frenzy: Pictures of Dolly were on the front page of every newspaper in the world.

Followed by panic - Governments took preventative action to stop human cloning

March 2001 an Italian doctor claimed that he was only months away from starting to clone babies for infertile couples.
Cloning in brief

- Cloning is the creation of an embryo using the genetic material from another being.
- Embryos provide stem cells - versatile.
- Take a fertilised ovum (an embryo).
- Removing genetic contents.
- Replace with new genes.
• Since 1995 sheep, pigs, goats, mice, cows and even cats have been cloned.
• For every living clone, there are hundreds of failures. 97% of cloning attempts don't work.
• In some species, like dogs, no living clone has ever been produced. Nobody knows why, although there are several theories.
• **Nuclear transfer** delicate so it could be going wrong for a variety of reasons.
  – Possible embryo damage
  – Embryos development problems
Why Clone?

- Reproductive Cloning
  - Help infertile couples
  - Donor embryo (for stem cells) + genetic material from 1 parent
  - Resulting child is a genetic copy of the parent
  - Currently such a practice is prohibited in the UK and many other countries
  - An organisation called Clonaid has claimed to have done this but it is unconfirmed
Why Clone?

- **Therapeutic Cloning**
  - Develop cures for Genetic disorders
  - Medical conditions that seriously damage the human body's specialised cells could be cured:
    - Degenerative diseases
  - Improve transplant success
    - Aid recovery from those who suffer extensive burn damage and complex fractures
  - Grow spare parts

- Once the cells had been grown, they could be injected back into the patient and the embryo would be destroyed.
In the long term there could be considerable potential for the use of tissues derived from stem cells in the treatment of a wide range of disorders by replacing cells that have become damaged or diseased. Examples might include the use of insulin-secreting cells for diabetes; nerve cells in stroke or Parkinson’s disease; or liver cells to repair a damaged organ...

In addition to this potential to develop tissue for use in the repair of failing organs, or for the replacement of diseased or damaged tissues, the technique of cell nuclear replacement might be applied to treat some rare but serious inherited disorders. Repairing a woman’s eggs (oocytes) by this technique gives rise to the possibility of helping a woman with mitochondrial damage to give birth to a healthy child which inherits her genes together with those of her partner. (Department of Health (2000a), pages 6-7)
• Human reproductive cloning is illegal in UK
• Worldwide moratorium on human reproductive cloning
• Moratorium should not extend to research involving cloning of very early human embryos for investigations into the therapeutic potential of stem cells.
• Very early human embryos cloned for legitimate research into harnessing stem cells could help to improve or save the lives of millions of patients worldwide.
• Recent poll – majority of US public supports research on human embryonic stem cells
Go ahead for stem cell research

These possible benefits have led to the permission of embryo stem cells research by Human Fertilisation and Embryology Authority.

The mixing of human adult (somatic) cells with the live eggs of any animal species, and reproductive cloning remains a criminal offence.

MPs voted to relax existing rules so that stem cells can be taken from embryos at a very early stage of development and used for therapeutic cloning.
We can clone but should we?

Traditional Christian view

• Cloning is wrong on deontological basis
• Arguments appeal to God's will or to the unnaturalness of the act.
• From conception onwards the embryo has full human status so no research justifiable
• It is wrong to create dispensable embryos
• God creates life, and it isn't for humans to destroy even its embryonic form
Lords rejected "pro-life" charity's challenge to laws allowing therapeutic cloning.

Pro-life Alliance:
- "Cloning is wrong because it involves the experimentation and destruction of early human life.
- "Future generations will look back in absolute horror at this government's wholesale disrespect for human dignity and will see the House of Lord's judgment today as an extremely sorry chapter in British judicial history."
Christianity and the early embryo

- Status of the early embryo deduced from attitudes to abortion.
- Abortion gravely sinful
- Early stage termination carried lesser penalties (ensoulment from Aristotle and Greek and early Latin translations of Exodus 21, 22)
- Established position from 12th to 17th centuries in Western Church but not eastern
- Evidence of the earliest Christian centuries is open to different interpretations on this issue.
- In 1869 Pope Pius IX declared that all mothers who had survived an abortion were to be excommunicated - definitive for many Christians - Aristotle now rejected
- Other Christians give weight to the distinction
- Some Christians along with some non-Christians take situational or consequentialist views
Even though the 'end is good', the 'means are immoral', as they result in the death of 'tiny cloned human beings' (Cardinal Winning, BBC News Online, 2000).

Guild of Catholic Doctors, (Dr Michael Jarmulowicz)

- Human embryo should be treated with respect.
- To use the human embryo for basic science research removes the special status they deserve.
- Could use adult stem cells in the future, which would save the lives of the embryos.

Therapeutic cloning would lead to human cloning.
Leon Kass

• Leon Kass 'The wisdom of repugnance' (1998)
• Negative impact on human society, the family or the child
• Confusion for the child because 'She is the work not of nature or nature's God but of man, an Englishman' (pp. 13-14)
• Human cloning represents a step towards turning reproduction into manufacturing: '… if sex has no intrinsic connection to generating babies, babies need have no necessary connection to sex …' (p.16)
• Cloning represents a form of despotism
People are repelled by many aspects of human cloning. They recoil from the prospect of mass production of human beings, with large clones of look-alikes, compromised in their individuality; the idea of father-son or mother-daughter twins; the bizarre prospects of a women giving birth to and rearing a genetic copy of herself, her spouse or even her deceased father or mother, the grotesqueness of conceiving a child as an exact replacement for another who has died;
the utilitarian creation of embryonic genetic duplicates of oneself, to be frozen away or created when necessary, in case of need of homologous tissues or organs for transplantation; the narcissism of those who would clone themselves and the arrogance of others who think they know who deserves to be cloned or which genotype any child-to-be should be thrilled to receive; the Frankensteinian hubris to create human life and increasingly to control its destiny; man playing God.

Almost no one finds any of the suggested reasons for human cloning compelling: almost everyone anticipates its possible misuses and abuses. Moreover, many people feel oppressed by the sense that there is probably nothing we can do to prevent it from happening. This makes the prospect all the more revolting.
Bruce—humans are ends not means

• Donald Bruce (2000), Director of the Church of Scotland’s Society, Religion and Technology project
• rejects human cloning and the use of cloned embryos for therapeutic cloning
• Inconsistent to create embryo and then destroy it
• Wrong to create an embryo as a resource for others—not to be used as a means for other ends
• ‘ethical gradualism’ slippery slope
Ends outweigh means

• Embryos research could lead to greater benefits
• The early embryo is just a ball of cells.
• Resulting gains justify the action.
• Professor Wilmot: 'Although I'm a very strong advocate of cloning as a possible means of therapy, I am still a strong critic of people who say they want to clone humans ... It would be a great shame if irresponsible attempts to produce people would provoke a backlash against research with human embryos ...'.

• Church of Scotland affirmed special status of embryo as created by God but recognised the potential benefits of embryo research under limited circumstances.
Reproductive Cloning - Pence

- 'Will cloning harm people?' (1998, pp. 115-128), Gregory E. Pence
- Human cloning not harmful to any person
- 40% of human embryos fail to implant in normal sexual reproduction so the loss of embryos in cloning process harms no one
- Embryos are not sentient and can't experience pain and are not persons
- The objection to human cloning is irrational
No new ethical questions


• Identical twins share more properties than Dolly did with her mother.

• Conjoined twins differ in personalities and achievements.

• 'We know that identical twins are distinct individuals, albeit with peculiar and extensive similarities. We give them different names. They encounter divergent experiences and fates. Their lives wander along disparate paths of the world's complex vagaries. They grow up as distinctive and undoubted individuals, yet they stand forth as far better clones than Dolly and her mother.' (pp. 106-107)

• A cloned human being would live in a different time and culture from the source of the gene code.
Robertson on reproduction

• 'Wrongful life, federalism, and procreative liberty' (1998), the law professor John Robertson

Reproductive cloning acceptable: 'If a couple is willing to take the risk that embryos won't form or cleave, that they won't implant, that there will be a high rate of miscarriage, that the child will be born with some defect, and that they will then rear the child, it is hard to see why this is any worse than the other practices that could lead to physically-damaged offspring.' (p. 8)

It stands as some people's only opportunity to have children.
“Doctor,” he said, “you work with twins, don’t you?” Sitting, as we were, in my clinic at the Multiple Births Foundation, I half-smiled and gave a nod. “So you can help me. Listen. My son, Steve, he’s been in a car accident. A really bad one. He’s on one of those machines, see, life support machines, and they’re about to turn it off. But listen. We need you to take some of his cells, freeze them, and then clone him. You see? We need you to clone Steve for us.”
• Grief in the 21st century - grieving process frozen along with DNA
• ‘desperately seeking cloning’ families cannot reproduce their loved ones
• the clone would experience different perhaps harmful experiences
• urgent need to listen to parents looking for magic so they find room for grief
• A personal view on why cloning is not the answer to the tragic loss of a child, from paediatric consultant, Dr Paul Gringras.
In conclusion

• Consequences - balance good against bad
  – Childless couples have the potential for children
  – Degenerative diseases might be eradicated
  – No more shortages of donor organs
  – Gene Therapy to cure Genetic disorders

BUT
  – Cloned individual might be damaged
  – Erosion of life's status and the status of natural reproduction
  – Technology used with dubious motives - replacement children
  – Slippery slope to human cloning and eugenics

• Deontological
  – Embryo research & human cloning immoral, if embryos has full human rights status
  – Asexual reproduction unnatural
  – Creating life for spare parts treats humans as means not ends

BUT
Resources

- Internet sources
  - www.bbc.co.uk/science/genes
  - The Royal Society - www.royalsoc.ac.uk
  - www.parliament.uk - Parliamentary reports
  - www.nuffieldbioethics.org
  - www.hfea.gov.uk

Key Text
- Gregory E. Pence, "Flesh of my Flesh, the ethics of cloning humans, a reader," 1998