

# *Some Thoughts on Biology & Ethics*

A Biology.ie publication © 2007. Only available for download from [www.biology.ie](http://www.biology.ie).

Suitable for the Leaving Certificate Biology syllabus. Contact [info@biology.ie](mailto:info@biology.ie) for further information or with comments.



## 1.12: Some Thoughts On Science & Ethics (Bioethics)

There is no examination needed to study this topic like the others in this chapter. Just read it to make yourself (and your friends) aware of the ethical problems we all face in the world today. It will help you to see why biology is possibly the most important science subject for the 21<sup>st</sup> century. You will gain a greater understanding of ethics if you discuss the material in this section in class, or with your friends and family.

### WHAT IS ETHICS ALL ABOUT - SOLVING MORAL ISSUES

Ethics is a subject that tries to study whether actions or decisions we take are good or bad. It is a very difficult area to study because ethics has to take into consideration morals. We are brought up with moral values; they become part of us before we realise it. Nobody exists without some moral standard. Morals change from one country to another and from one period of history to another. For example, some people have Christian morals, while others have Muslim morals. These morals lay down rules as to what is good or right and they often conflict with each other. For example, in Christian morals, animals are put on

---

*If you were the Christian you would not have an ethical problem. So you can see that ethical problems are linked closely to moral and religious beliefs.*

---

this earth for mans use; this has lead Christians to treat animals such as cows, as objects. In the Hindu moral code cows are sacred and respected by everyone.

#### REMEMBER

---

Ethics is a subject that tries to study which actions or decisions are good or bad.

---

An ethical problem is one that confuses us as to what is right or wrong. Scientific knowledge can help us solve these ethical problems.

#### Imagine the following situation:

A Christian and a Hindu are in a boat with a cow. They are lost at sea and all three are starving. Can the Christian eat the cow? Yes, according to Christian moral code, the cow can be used for his own benefit. Can the Hindu eat the cow? If you were the Hindu you are faced with an ethical problem. Your belief tells you that the cow is sacred and you could starve.

#### REMEMBER

---

An ethical problem is one that confuses us as to what is right or wrong.

---

The scientific method can help some people understand and solve ethical problems. However scientific discoveries frequently pose ethical problems for both scientists, and the lay person.

### SOME ETHICAL PROBLEM TO DISCUSS

Ethical problems always involve how we behave towards the natural world and

in particular towards the animals and plants we share the world with, including each other. The ethics of biology related issues is often called *bioethics*.

### ETHICAL PROBLEM 1: OUR ATTITUDE TOWARDS THE ENVIRONMENT?

Until this century we have lived without thinking about our links with nature. We plundered (and are still plundering) the environment to develop our economies, political regimes and culture. But in this century we recognise (through science mainly) that we have killed off many life forms (extinction) and habitats and poisoned others almost out of existence. Global warming is changing the whole biosphere. This has opened up a new ethical problem: how do we behave towards the environment to preserve it, not just for future generations of our own species, but for all the other life forms as well? Many of the ways we still discuss environmental issues are centred around us (Man). For example, many great philosophers (Plato and Aristotle) who have given us our moral values were obsessed with human happiness. Other philosophers (and religions) say that our duties and respect should only be directed at members of our own species (and we don't even do that very well). These attitudes have created a major conflict between human ideals (about ourselves) and the facts science have revealed to us about the world. There is almost no philosophy or religion in the world, past or present, that can help us see the world as a whole. A holistic approach needs to be taken. The nearest way of thinking about the world that helps solve the environment-ethical problem is perhaps Buddhism. Buddhists emphasis frugality and simplicity as the way to live.

#### A typical environmental road building ethical problem

Let us look at an environmental problem that arose many times in Ireland in the last ten years; road building and the environment. I will generalise the problem and we will discuss the various sides of the problem from an ethical point of view.

Imagine you live in a small town, but every day 50,000 cars and trucks pass through it. The pollution from noise and fumes is unbearable; people stop shopping in the town; house prices drop as nobody wants to live there. The government responds to the problem by pretending to take an ethical view of the problem and offers to build a by-pass (they actually just want votes at the next local election). The road planners (none of whom ever studied biology) just drew a line on the map around the town indicating the new road route. This was when the ethical problem was created because the proposed route was through marsh ground that was the habitat of a rare snail; furthermore, to build the road a small local river needed to be diverted. Lastly, the marsh was a nice place (known locally as Niceplace) to walk during leisure time. Lets look at the arguments that arise to try and stop the construction of the road

through Niceplace.

1. Niceplace gives pleasure to humans who like to walk there; it must be retained for the present and future generations. This is a typical argument put forward, but beware as it is about giving humans pleasure (just as building the road in the first place will do).
2. The snails and other animals (and plants) need a place to live their lives; to destroy the habitat is to kill them and all future generations of the marsh-living organisms. This argument is less selfish as it takes consideration of lives other than humans.

---

#### DID YOU KNOW?

Knowledge of the world gained through the scientific method can help us make the 'correct' decision when we are faced with an environmental ethical problem.

---

#### How Does The Scientific Method Help Us Solve This Ethical Problem?

The scientific method has helped us to understand the relationships between all the organisms in 'Niceplace' and in turn, how 'Niceplace' marsh contributes to the whole biosphere. It also helps us to understand our place in the biosphere. You can see that the plants and animals *need* the marsh whereas the humans just *want* the road. People who have no interest in the natural world will find these arguments difficult to understand; especially when they are told that plants have a right to a place to live. But remember the plants (and the rocks and soil) all support the animals and ultimately humans. If planners understand this then maybe they will see the ethical problem.

However let us imagine that the planners still cannot see (or refuse to see) the ethical problem. They lack knowledge of the environment and refuse to allow ecologists explain how their decision will affect the biosphere. We could then take the approach to explain what would happen the world if they were allowed to proceed; no habitats, so no plants, then no animals, no rainforests, no jungles, no sandy beaches. Just buildings with animals and plants kept inside them to provide us with food and plenty of roads to transport them to our dinner plates. This would not be a 'Niceworld' to live in. The scientific method can show that human life would come to an end.

You can see that the man-centred argument (1 above) will fail to save 'Niceplace.' We need a more *holistic* view of the world where we see beyond our own selfish wants and see the needs of the environment and the greater biosphere. Argument 2 will succeed far more because the scientific method has helped us understand the problem, but it can fail if it is not understood by the people who make the decisions.

Most of the ethical problem solving methods that exist today are still man-

centred and the environment cannot survive this. Environments like ‘Niceplace’ would cease to exist if we follow argument 1 as human *want* and political and economic *wants* will win out.

Why is Man continuing to destroy the world he depends on?

Because he sees himself as separate from the natural world, outside it

---

*Man is not outside of nature. We are part of the ecology of four ecosystems. If this is not recognised by our government and decision makers, then Man and many other life forms are doomed to extinction.*

---

#### DID YOU KNOW?

---

Aristotle wrote many accurate things about animals over 2000 years ago. He was very interested in biology. He had his own ‘scientific method’ and carried out dissections on dead animals to describe them accurately. Many of his ideas about animals were forgotten later because he wrote in Greek. The Church in the West did not like people to read Greek because it would expose them to ideas they did not agree with. They burned many libraries of Greek books in Europe. The only ideas of the Greek philosophers that survived in Europe were the ones the Church approved of and they were mainly the ones that St.

Thomas Aquinas recommended to the Pope. St Thomas Aquinas is now seen by many biologists as someone who held back the progress of science. He described animals as ‘objects’; this implied they need not be given moral or ethical consideration. The phrase ‘behave like animals’ to describe immoral behaviour comes from this attitude. The Church used his writings to hold back the development of science for hundreds of years.

---

and controller of it. This idea has come to us through philosophy (especially the ancient Greeks) and then through popular religions such as Christianity. If we continue to make ethical/moral decisions in this way we will destroy the biosphere.

So what ethical system will save the environments of the world (which all add up to the biosphere)? Probably one that recognises that Man is simply a part of all the living things on the planet. Man must see himself as a partner with all the other life forms in the biosphere.

#### ETHICAL PROBLEM 2: HOW SHOULD WE TREAT ANIMALS?

How we think and feel about the world mostly comes to us from philosophers and religious leaders. They form our *moral code*. It is very difficult and very rare to see beyond our own moral code; it sometimes takes a stroke of genius. Look below at how our moral code about animals has been formed.

What Aristotle thought Aquinas made into a law

The famous ancient Greek philosopher Aristotle thought that animals could *not think*. He said that when they do something that looks as though they are thinking they are only *mimicking* humans; they are not thinking. He said Man was the greatest thing on Earth; and animals only copied him. People believed Aristotle because he was able to read and write at a time when this was a rare thing to be able to do; he seemed very intelligent. He sat around thinking about these things every day while his slaves took care of the practical side of his life such as getting food and cooking. Several hundred years later a Christian called Aquinas wrote a book of laws for Catholics to follow. He read Aristotle’s work on animals and copied it into these laws. So today Christians have this attitude towards animals that they cannot think. The Pope made Aquinas a Saint for his work.

What Descartes thought about animals - not much it seems

Rene Descartes was a French philosopher. He was good at mathematics and is said to have invented the Cartesian plane used in coordinate geometry. He was also interested in science and said that animals were just machines, like a mechanical clock. Animals, he explained, could not think, nor did they have feelings; they only acted according to instinct. He agreed animals were like Man in some of their anatomy and so could be used for dissection. He once wrote 'an animal screaming in pain is like a chiming clock'. He wrote books that tied people's brains up in knots. Everyone thought he was great and believed everything he said including his silly ideas about animals. Descartes' ideas have become part of the Christian moral standard. They lead us to commit many immoral and unethical acts towards animals. The scientific method has shown us that Descartes was wrong on all these points: animals do suffer and can think.

Kant made a better effort - say 4/10 - talented but lazy, needs to try harder

A German philosopher called Kant said that it was 'wrong' to be cruel to animals, but only because the person that is cruel to animals will probably also be cruel to humans. This is not a holistic approach to life; it is still human centred. Worth 4/10.

Wittgenstein rarely spoke - but when he did he said philosophy was a waste of time

A philosopher named Ludwig Wittgenstein (died in 1951) was probably the greatest philosopher of all time. He lived for a short time in a small house near Killary harbour in the West of Ireland. He said that most of the problems that philosophers worry about are due to the incorrect use of language. He explained that we use logic in one sentence and illogical moral thinking in another. This becomes jumbled up and we try to sort it out with philosophy. He said that we need not sort out these problems because they do not really exist. He ended up saying that philosophy is a waste of time. He made one big mistake, however: he used his logic in the following way. *It is impossible to think without language, ergo animals cannot be conscious.* Wittgenstein then went fishing.

What does the scientific method tell us about animals?

1. Aristotle was wrong. Animals can think and solve problems. They can solve problems to help them survive in their own ecosystem

2. Descartes was wrong. Animals can feel pain. They have a nervous system to allow them to respond to the world around them, just as we have. They also produce distress noises, or move away from situations that cause them discomfort, just as humans do. Some people said that they do not feel pain like sensitive humans so it is okay to make them suffer! People also said this about slaves in the 18th and 19th centuries to justify that they could be beaten and tortured.

3. Wittgenstein was wrong. Animals are conscious. Different levels of consciousness can be seen in different animals. It is easier to see consciousness in higher animals such as mammals and primates than in lower animals.

#### Can Animal Rights help solve ethical problems?

Some people believe that animals have rights. This is a difficult question indeed. For example we can easily agree that animals have a right to live, not to suffer and a right to receive adequate food and water. But does a carnivore have a right to kill a man to eat? Just because an animal has the equipment to kill a person does not mean it should be allowed to. Animals can not present their rights to us. However, some people argue that human defenders of animals can make contracts for them. But then you are dealing with how people interpret the needs of animals. Because it is difficult to define 'animal rights' it is difficult to argue successfully about them. It is probably better to forget about the issue of animal rights when trying to solve ethical problems that arise because of their treatment.

#### Would legal rights be better?

There are other ways to protect animals, for example, we can give them legal rights fight for them in a court of law. We can state in a law, for example, that it is illegal to kick a dog or cat. If someone kicks a dog or cat they have committed a crime. It is then easy to go to a court of law for the animal. This method can help improve the lot of animals. Many laws could be created to protect animals and their habitats. We could create a law that states that it is illegal to remove a particular snail's habitat. This could then be used to take the road planners to court over the road through 'Niceplace' marsh.

#### Should we allow animals to be used in experiments?

Science has been responsible for the mutilation of millions of animals. Every year animals are blinded, injected with chemicals and pathogens to give them diseases, electrocuted, paralysed and burnt, all in the cause of science; frequently in the cause of satisfying human *wants*. We want a new shampoo that does not burn our eyes. Inject it into the eyes of dogs to see how they react!

#### How should scientists treat animals?

Look at the different attitudes to animals taken by scientists:

*1/ Some think that it is okay to always use animals in experiments regardless of the suffering it inflicts on them.*

*2/ Some think that we should first look for a way to carry out the experiment without involving animals, but if that cannot be done, then animals should be used.*

*3/ Others think that only experiments that are essential to the medical advancement*

*of Man should be permitted.*

4/ *A few scientists think that animals should not be used in experiments at all.*

Scientists need guidance on this ethical problem. Perhaps guidelines such as those listed below could be made into law:

1. Experiments should only be carried out for critical medical research
2. The experimenting scientist must state unambiguously the medical benefits of his/her experiments
3. S/he must state clearly why the experiment could not be carried out on humans

Try adding some other guidelines yourself.

### ETHICAL PROBLEM 3: EUTHANASIA ('EASY DEATH')

This term is used to describe the painless killing of someone to relieve their suffering. People who agree with euthanasia say it should be allowed in cases where people request it or in situations where someone has an incurable illness or injury. Euthanasia is illegal in most countries.

In recent years there have been cases of people being accused of murder or found guilty of murder after they admitted helping someone to die.

*Here are some cases to think about or discuss*

Case I: A woman who was terminally ill and suffering unbearable pain asked her doctor to help her die peacefully. The doctor was also a friend of the woman and her family before she became ill. He did help her to die peacefully. The woman's family agreed with the doctor and agreed that 'he looked after her with care and compassion'. A court of law found the doctor guilty of murder; he was considered a criminal and that he had betrayed his duty as a doctor.

The doctor responded by saying:

*He believed what he did was right.*

*He acted wholly in the interest of his patient*

*He did his best in a difficult ethical problem*

You will get a better understanding of the ethical issues involved here by discussing them in class. Remember that in your discussion you must listen to other people's views and be willing to change your own!

Case I I : A man was terminally ill with multiple sclerosis. His quality of life had deteriorated to the extent that he was suffering extensive pain and was a burden on his friends and family. He decided he wanted to end his life by euthanasia. He left Ireland (euthanasia is illegal there) and went to a country where it was acceptable and legal. He was helped to die peacefully.



Many people considered that he committed suicide; others said that he was murdered and those people that assisted him should be charged with murder.

Discuss this case.

Case I I I : A woman was terminally ill with motor neuron disease. She asked her husband to help her commit euthanasia. He agreed. After her death he was charged with murder. He said in court that he did what his wife wanted and he did it out of love for her. He loved her so much that he wanted to relieve her of her suffering. The court of law did not find him guilty of murder.

What would you do in this case? How would you convince someone who opposed you that your actions were correct?

These three cases are examples of voluntary euthanasia. Would you feel differently about non-voluntary euthanasia? Cases for non-voluntary euthanasia include people that are unable to make a decision such as the unconscious or the newly born. The people who would choose in these cases are the doctors and relatives.

A doctor can leave a patient die by withholding treatment; this is acceptable legally as long as he does not actively help the person to die.

*Some points to consider and discuss*

- ◇ Some people think that euthanasia should never be allowed while others say that it is okay if it is requested by terminally ill patients in great pain.
- ◇ A patient is in great pain but not terminally ill.
- ◇ A patient is paralysed and cannot cope with it and wants euthanasia.
- ◇ A patient is unconscious; for 6 months, or 1 year or 10 years or even more.  
Remember that in the case of a coma a person is being kept alive by artificial means. If nature were allowed to take its course they would die naturally.

How would you feel knowing the following about the medical staff taking care of you?

- ◇ Your doctor had killed other patients (by their request) by euthanasia.
- ◇ Your doctor would never participate in euthanasia and you are in intense pain that cannot be relieved or eased.

In each of the three cases described above there was a reason for euthanasia. If you agreed with euthanasia in each of these cases, consider what you might do if the reasons were different. Perhaps you might come across a reason that

you disagree with and someone else agrees with. In other words, if euthanasia is brought in then the reasons to carry out euthanasia might change to levels that are unacceptable.

For example, in the first half of the 20th century the Nazi Party in Germany came to power and brought in many laws to suppress the Jewish race. Eventually it was decided by the Nazi Party that Jews were an inferior people and should be exterminated. The term euthanasia was used to describe this extermination, but perhaps that was just to disguise what was really being done: mass murder.

In Holland euthanasia is legal; doctors follow a code known as the *Rotterdam Rules* to help them not to overstep what euthanasia was made legal for.

People who argue against euthanasia say it would hinder true medical research. What do you think of this?

#### Other Bioethical problems to consider

As science advances more and more ethical problems arise. This is because our moral education took place when these problems did not exist. Should we bring in laws to help us decide or should each case be considered separately? Perhaps a mixture of each would help. What do you think?

Ethics is a very difficult area and appears to be moving into a very difficult period. In discussing ethical problems it is important to listen to the 'other side' and give consideration to all the points raised. Remember it is not a logical area because you are dealing with your own moral codes as well as those of other people.

#### When Does Life Begin?

Does it begin at the moment an egg is fertilized? Perhaps it is after a few days when cells begin to take on their 'job' for life; some cells become nerve tissue. other form the heart, etc. Or is it after several months in the womb?

#### Stem cell research

Stems cells are undifferentiated and can be put into people to replace body cells that are not working properly; in this way they can 'cure' people of illnesses such as heart disease and memory loss. Embryonic stems cells are the best of all for this job, but they must be taken from embryos. Should we grow embryos to 'harvest' stem cells?

#### Abortion

Should abortion be banned? Is there ever a situation where it could be allowed? Can the scientific method ever help you decide?

## Questions - Now Its Your Turn

- Q 01. What is an experiment? Name two different types of experiment. Which type would you like to work with if you were a biologist? Why?
- Q 02. When a scientist sets up a situation where he/she is carrying out 'controlled observations', what stage of the scientific method are they involved in? Write a short note on controlled observations.
- Q 03. Why can some experiments not be carried out in a laboratory?
- Q 04. What is a variable. Name one type of variable used in experiments. Can scientists always control the variables they use in experiments?
- Q 05. Name the essential feature of a good experiment. Explain you answer with an example.
- Q 06. What is the purpose of a control in a scientific experiment. Explain your answer with an example.

