

## Puzzling Things

### Some views on Defense/Attack Mechanisms, Pathogenic Bacteria and Viruses

by

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**Attack/defence Mechanisms but well designed and therefore a problem for the evolutionist:**

**Poison fangs of snakes**

**Bites and stings of insects**

**Pathogenic Bacteria**

**Protozoa, e.g. Malarial parasite**

**Viruses, e.g. polio, AIDS**

**Nematocysts of coral and jelly fish**

#### Two theories

##### **(1) Attack/defense mechanisms had a different pre-Fall function**

Pre-Fall animals are assumed to have been herbivorous, and some having sharp teeth still are, e.g. fruit bat, camel and giant pander. Pre-Flood vegetation was richer and abundant, and many plants, now extinct, may have provided a very adequate vegetarian diet.

##### **How did the bad things come about?**

Attack/defense mechanisms are far too complicated to have evolved by chance, and therefore can't be explained by evolution. How, then, can they be compatible with a God of love? They were needed after God cursed the ground (Gen. 3, 17), and especially after the Flood when the climate became harsher and extreme.

##### **(2) Genes of Attack/Defense Mechanisms were 'switched on' after the Fall**

The genes for the attack/defense mechanisms were probably built into the genomes, but they were "switched off." God foreknew what would happen, and that they would become needed when necessity arose, especially after the Flood. They were then "switched on" by God or by some natural mechanism, not clearly understood.

It was only after the Flood that God allowed flesh to be eaten (Gen. 9, 3)

Owing to scarce resources after the Flood, animals were hungry and started to prey on one another, and so the *hunting instinct* was developed, and animals acquired a taste for blood.

## **Nephesh and Non-Nephesh**

Apart from plants eaten, creationists assume that there was no death before the Fall. This may only apply to animals having what Hebrew describes as *nephesh* or soul. This would not apply to bacteria which are essential for maintaining the cycle of life, but it is somewhat difficult to draw the line between *nephesh* and those without it. Non-nephesh would include all insects including spiders, and in the sea both phyto- and zooplankton, crustaceans (e.g. crabs and lobsters), jelly fish, octopuses and squids, star fish and sea cucumbers etc. But views differ. Nearly all food chains in the sea are now carnivorous.

## **Over-Population without Death?**

(1) Taking to heaven of Enoch (Gen. 5, 24) and Elijah (2 Kings 2, 11) are significant.

(2) Overcrowding causes slower birth rate.

(3) Decrease in longevity after the Flood. This may be due to genetic damage due to increased exposure to cosmic rays and decaying magnetic field.

## **Environmental Deterioration after the Flood**

Animals and plants were larger before the Flood, e.g. fossil dragon flies with 3 foot wingspan and cockroaches a foot long.

Lycopods which today grow only 18 inches are known as fossil trees 100 feet high.

Human footprints 18 inches long confirm there were giants (Gen. 6, 4)

## **Herbivory in Original Creation**

(1) Mosquitoes. Females need haemoglobin and some plants have this, but there may have been many more before the Flood.

(2) Reptiles. Of 17 lizard families, only one is meat-eating.

(3) Dog family. Domestic dogs can live on meal, though they have sharp teeth. Coyote's diet is fruit.

(4) Bat family. Bats have sharp teeth and all live on fruit except the Vampire.

(5) Bear family. Bears eat both meat and vegetation. Pandas have sharp teeth but live on bamboo shoots.

(6) Lions. In the war lions were induced to eat vegetables. One case of a herbivorous lion vomited when offered meat.

## **Rule = Subdue**

*“Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and the birds of the air...”*

In Hebrew the word *subdue* only refers to the non-living earth. Man did not have to subdue animals as though they were fierce and violent. He was able to *rule* them, indicating they were tame originally.

## **Parasites**

Parasites may be:

- (1) **pathogenic**, detrimental, though not necessarily fatal to the host,
- (2) **commensal**, neutral, harmless co-existence, or
- (3) **symbiotic**, mutually beneficial to host and parasite.

In one host they are **autoecious**, and in more than one, **heteroecious**.

**Endoparasites** live inside the host, and **ectoparasites** live on the outside.

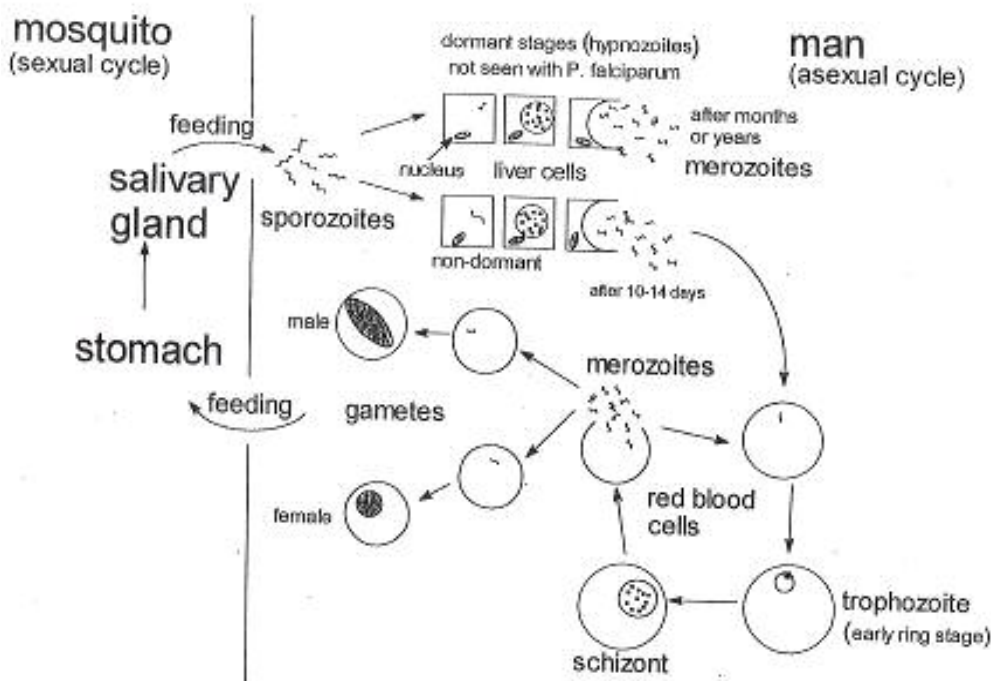
### Parasites were not originally harmful

Creation was *finished* (Gen. 2, 2) so that all the *kinds* of organisms, including bacteria must have existed from creation. Then, their function would have been useful.

Animals had to digest food from the beginning and their waste recycled. This was carried out by bacteria and fungi as it is today. Life on earth would cease without bacteria.

### Life Cycle of the Malarial Parasite

#### Life cycle of malaria parasites (simplified)



The mosquito injects *Plasmodium* into the blood. These enter red blood cells, reproduce and destroy the cell. Only egg-laying mosquitoes bite and require protein and iron to mature and produce eggs. In the original world there may have been more plants containing haemoglobin than today. Hence after the Flood, humans became a target. Not all mosquitoes transmit malaria, and males feed on nectar.

### River Blindness

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### **Pathogens not originally harmful but may become so**

When microorganisms get in the wrong place, illness may be caused. This is why the immune system was necessary in the pre-Fall world, but probably worked better than today. It carefully distinguishes between “self” and “non-self” and has to be challenged to improve its efficiency.

### **Bacteria and Viruses in Ecology**

People think that bacteria and viruses are here just to cause disease. It is not thought that God intended this originally. But they play an essential role in nature, and are essential to life on earth. They break down waste into simple compounds usable by higher organisms as nutrients. Actually very few are pathogenic.

#### **A good virus**

On human chromosome 22, human endogenous retrovirus turns off the immune system during pregnancy. This design prohibits the mother’s immune system from damaging the child’s body. They infect only local immune cells, preventing them from initiating an immune response to the embryo.

#### **A good mutation**

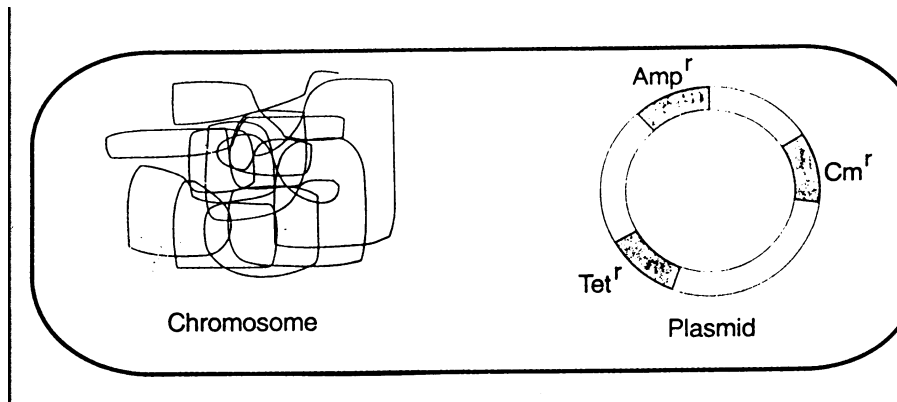
A receptor called CCR5, found in many types of cell membranes, allows the entry of *chemokines* involved in signaling the body’s inflammation response to injuries. Then coding gene occurs on Chromosome 3. One of the mutant forms of the gene is called CCR5-delta32, so-called a particular sequence of 32 base-pairs is deleted. This results in a non-functional receptor, but this does not cause disease.

The virus HIV enters through the normal CCR5 receptor, but it cannot enter through the damaged receptor, and hence immunity from AIDS is conferred. Also the development of cerebral malaria is slowed and so is the progression of multiple sclerosis. Note that the gene has lost information.

### **Black Death**

Black Death or *Bubonic Plague* results from a degeneration of the bacterium *Yersinia*. Loss of 149 genes and acquisition of new genetic material from plasmids and viruses resulted in very pathogenic *Y. pestis*, which causes the Plague. Other degenerate organisms are those causing tuberculosis, leprosy and colitis. All these were not in God’s original good creation.

## A Bacterial Cell



### Chromosome and Resistance Genes for Ampicillin, Tetracycline and Chloramphenicol

#### Nematostys

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TIFF (Uncompressed) decompressor  
are needed to see this picture

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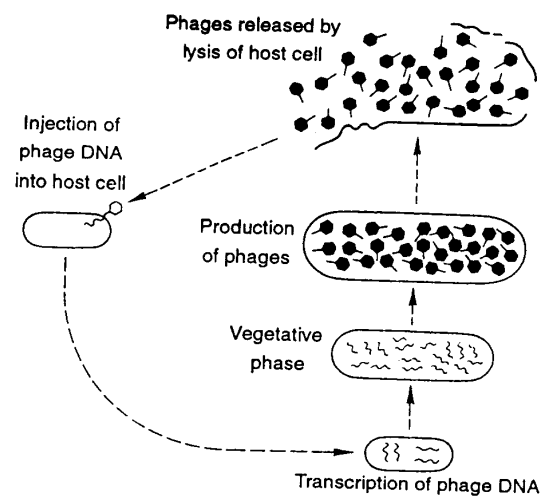
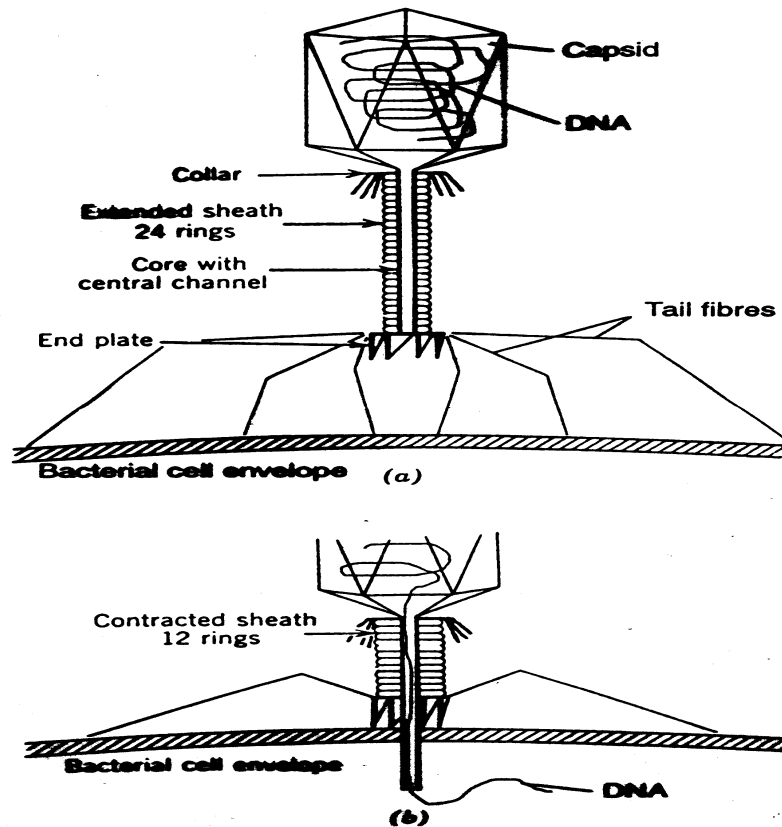
**Poisonous barb springs out**

#### **More about Bacteria and Viruses in Ecology**

Viruses are *gene carriers to bacteria*. Besides the main genome of bacteria (the *replicon*) there are small replicons in all bacteria derived from new genetic material from viruses and *bacteriophages* (viruses that prey on bacteria). Plasmids are small “packages” of genetic material passed from one bacterium to another.

## Bacteriophage Injection

*Bacteriophages* are viruses which attack bacteria and synthesize themselves by using the host bacteria's mechanism



**Plasmids** contain DNA codes for resistance to antibiotics and toxins from other bacteria and are a defense mechanism.

**Viruses** are critically important in conferring variation on bacteria, and bacteria are critically important in ecology. Bacteriophages exist in fresh and marine waters.

**Genetic exchange** is not random. Specific surface receptors determine gene exchange. Viruses are involved in gene exchange with bacteria and may serve totally (as yet) unknown functions in the material world.

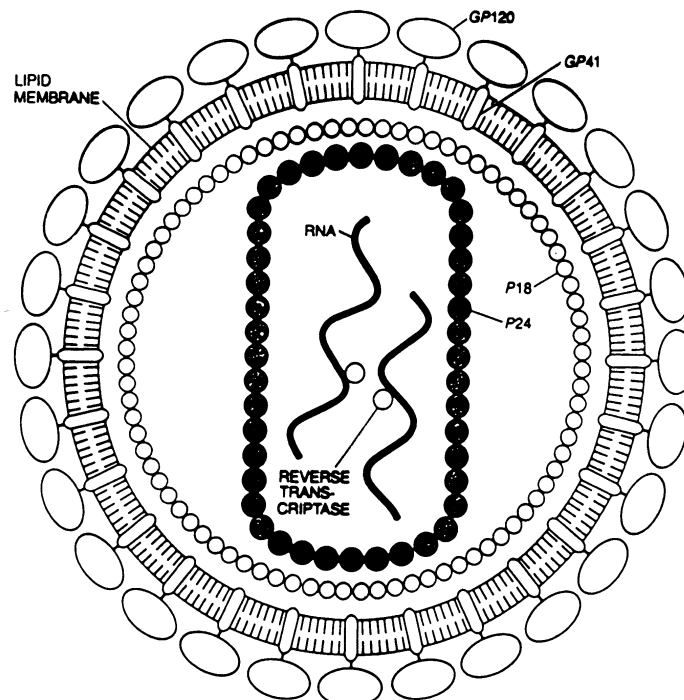
### Acquired Pathogenesis

***Vibrio cholerae*** causes cholera. But only one strain is pathogenic. Other strains live in rivers or the sea. The lethal strain contains a gene called GTX which codes for a toxin. This toxin has been found in a virus, and the cause of the pathogenesis was acquired from a virus.

**Cholera epidemics** are associated with poor water management. Filtering flood water through cloth reduces cholera even though cloth does not stop the bacteria. But they are attached to water fleas and their secretions dissolve discarded shells. Leaked sewage promotes algal blooms on which water fleas feed.

### HIV HUMAN VIRUS (Diagrammatic)

In apes this is commensal, but may have become transferred to man by means of vaccines made from ape serum or bestiality between man and apes.



Microorganisms pervade our environment. The sea's major biomass consists of viruses, bacteria, algae and protozoa, but comparatively few cause disease. This

occurs when they jump hosts, and may not do much damage, but when they do, the results are terrible, e.g. HIV and AIDS.

The majority of “new” viruses are not really new at all, but are by-products of viral traffic. More detail about the origin of pathogenesis awaits further research. The mutation theory of the origin of harmful viruses is feasible, most likely by gene shuffling. The only known totally fatal viruses are rabies and AIDS.

### **Examples of Pathogenesis**

**SARS** = severe active respiratory syndrome.

Originated in open food markets. It began to infect humans after re-mixing genes with another virus, but there was no new genetic information. This would not have happened in the original creation.

**Mad cow disease** came about when cows were fed with sheep’s brains and other animal waste. Caused *scrapie* in sheep, but a much more serious disease in cows and especially when transferred to humans. Cows are meant to feed on grass; hence mad cow disease was caused by human interference.

**Leprosy** is caused by *mycobacterium leprae*, and these can live inside macrophages. They attack the protective coat around nerve cells of skin causing loss of sensation. Leprosy has not evolved, but is a degenerate bacterium which has become dependent and cannot live outside human cells. The immune system does not destroy it.

### **Viruses in Medicine**

Because of the emergence of resistant strains of bacteria, e.g. MRSA or methicillin resistant staphylococcus aureus, efforts have been made to use bacteriophages to destroy bacteria. Harmless viruses have been used to carry healthy genes into persons suffering from genetic diseases.

### **Nematodes**

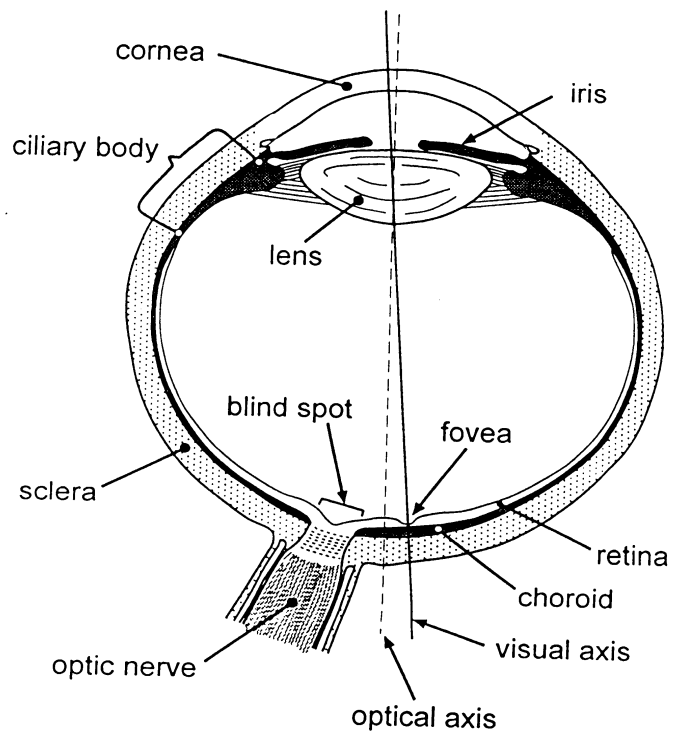
Some worms inhabit the gut. It can only be guessed what their function might have been in a perfect pre-Fall world. Creationists believe that these parasites are degenerate, and due to loss of genetic information, have become parasitic and unable to live independently.

### **Inverted retina of vertebrates**

Light has to pass through several inner layers of neural apparatus before reaching the photoreceptors. This has been criticized as bad design by evolutionists.

The reasons for this are complex and this idea of bad design was completely refuted once the intricate functioning of the retina was worked out.

This will not be discussed in this lecture as it is very complicated.



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