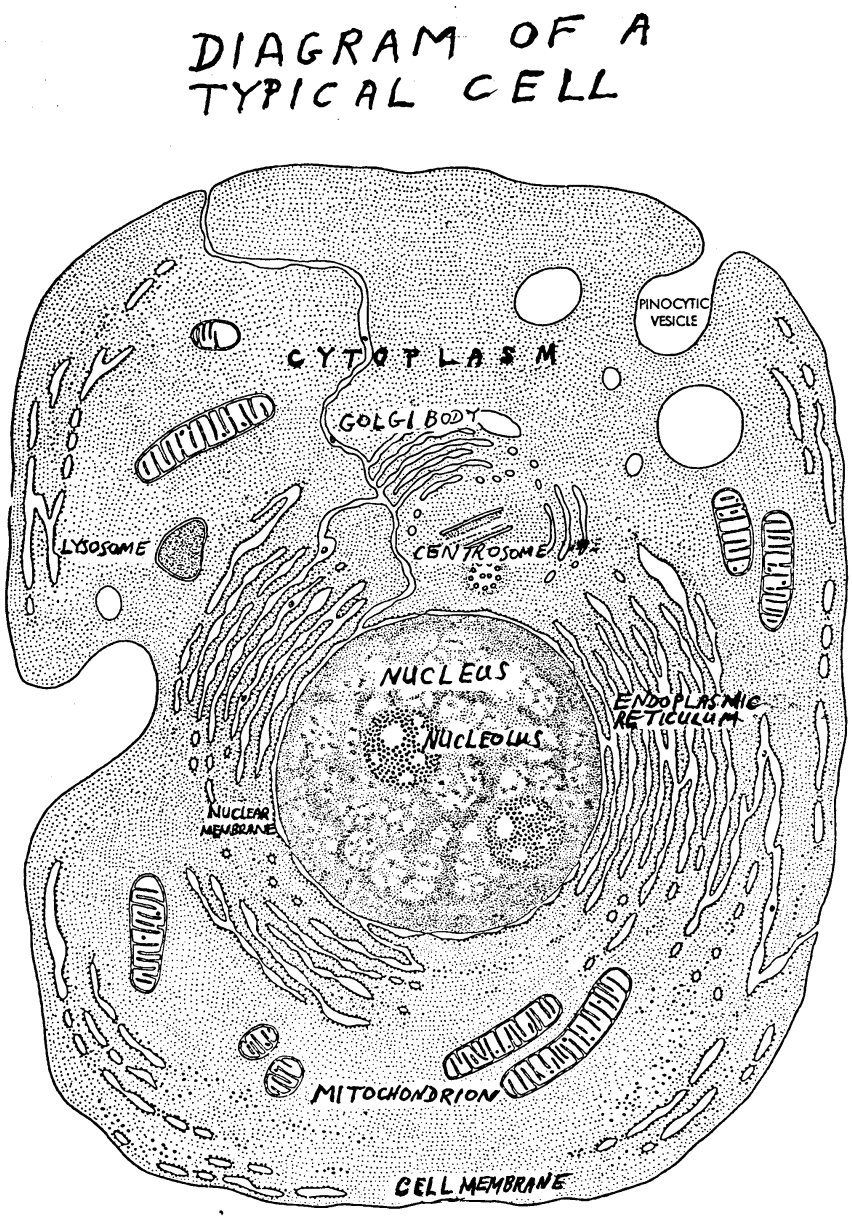
An Impossible Beginning

In the cell we have
INFORMATION
AUTOMATION
REPRODUCTION

In One Cell we have:
Thousands of internal structures
Transport System
Comprised of:
- 27 primary molecules including
- 5 nucleotides
- 2 sugars
- 20 left-handed amino acids



<u>Requirement of Evolution</u>– that life came from non-living chemicals
We shall attempt to show that living things are too incredibly complex for that to happen
Main organic molecules present in living matter are:

—***Amino Acids*, the basis of protein molecules**
Contain carbon, nitrogen and oxygen and are *asymmetric with right- and left-handed forms. Only 20 occur in nature.*

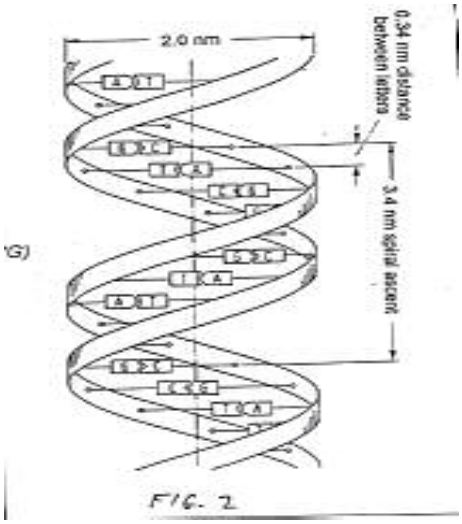
—***<u>Sugars:</u>* Contain carbon, hydrogen and oxygen. Only two occur in DNA – Ribose and Deoxyribose – both right-handed forms**

—**<u>Special Organic Bases –</u> only 5 occur in DNA and RNA called A for Adenine, T for Thymine, G for Guanine, C for Cytosine and U for Uracil (RNA only)**
This makes a total of 27 types of organic molecules, which are necessary for the coding of all information to make all living cells. Metals such as iron, sodium, potassium, calcium, and trace elements such as zinc, chromium and molybdenum and others occur in living cells.

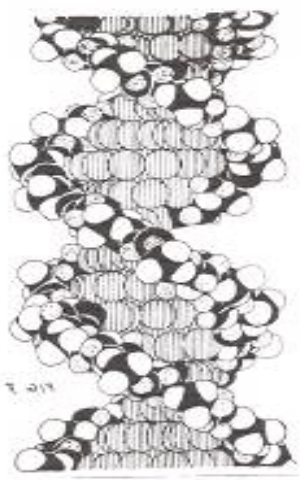
Large Molecules in Living Systems

<u>Proteins –</u> chains of 100 or more amino acids. Order of linkage essential for structure and function, just as an essential order of letters is necessary for a piece of prose to make sense.
Over 100,000 types occur in our bodies.
<u>Enzymes</u> are proteins essential for occurrence of all chemical reactions in cells. They speed up chemical reactions a million-, a billion- and sometimes even a trillion-fold or more. Living cells cannot work without them. About 2000 known.
<u>NUCLEIC ACIDS</u> occur in nuclei of all cells. Two types, DNA for storing information and RNA for copying and transferring information, called messenger RNA or mRNA.
DNA occurs in groups called Chromosomes, and all the DNA is called a Genome. Human genome contains 3 billion "letters" of DNA (Nucleotides)

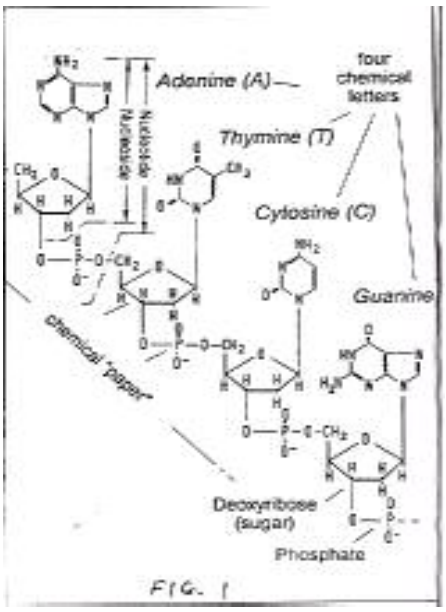
DNA Helix or spiral Diagrammatic

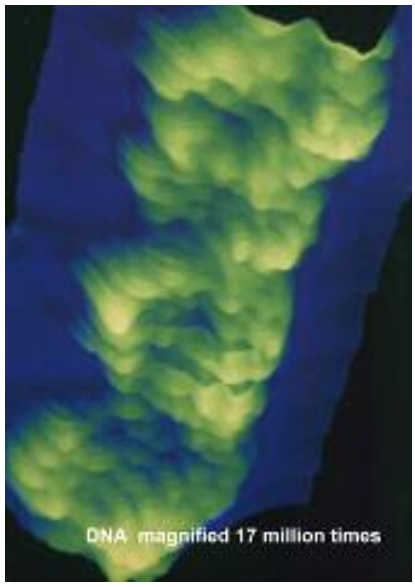


DNA Atomic Model



DNA Chemistry **DNA under electron microscope**





Transfer RNAs or tRNAs convey amino acids to sites where they are required for protein synthesis called **Ribosomes.** These contain about 80 protein molecules, their own RNA and join amino acids together forming proteins.

Main Features of a Typical Cell

Cell Membrane– only allows entry and exit of specific substances.
Nucleus– DNA and genome.
Messenger RNA made to take gene codes to Ribosomes where proteins are made.
Golgi Vesicles– where products are sorted and packaged for transport.
Lysosomes – where waste products are degraded and recycled.
Vacuoles – where nutrients or waste products are stored.
Endoplasmic Reticula – where ribosomes are located where proteins are made.
Cytoskeleton – consisting of a system of tunnels and fibres for transport of products by a variety of motor proteins, which carry tagged vesicles full of specific products to cell destinations. If magnified to the size of men they could run at 150 to 250 miles an hour!
Mitochondria– the power houses of the cell.

Complexity of Cells

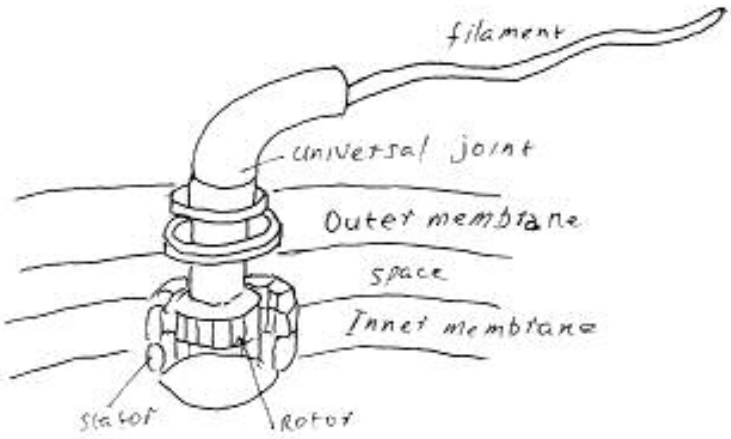
An average cell is about 0.02mm across and contains about 10^{13} atoms. Imagine its being magnified a billion times to a width of 20Km. It would be like a three-dimensional city with a memory bank, the nucleus, about a kilometre across, containing maintenance instructions in the DNA.
Messenger RNA would copy "files" and take them to parts of the city where products are required.

Complicated machines, the ribosomes, containing about a million atoms, translate the message on the RNA and make small biochemical machines, enzymes

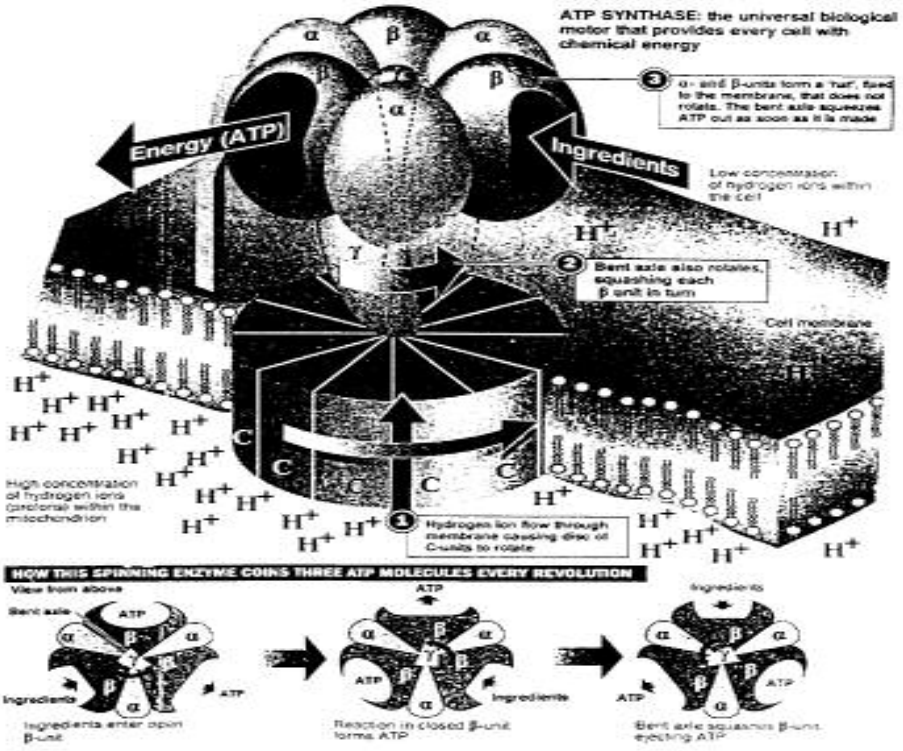
which synthesize required products. These are passed on in an assembly line to make further, more complex products, which are then transported through a three-dimensional network of tunnels, to where they are needed.

When sufficient product has been made, the machines are shut down (chemical feedback**).**

The Bacterial Flagellum



Adenosine Triphosphate Synthetase



This very complicated machine is a wheel. As it rotates it converts Adenosine Diposphate into Adenosine Triphosphate. (ATP) This latter is like the petrol of all living cells. No cell or enzyme could work without it. The wheel rotates at about

6000 revolutions per minute. Many occur in every cell of all organisms, plant and animal from bacteria to man. ATP is continually recycled in our bodies, and in a day we make about half our body weight of ATP. A thousand of these tiny motors would fit into the width of one single human hair.

There is no such thing as a simple cell!

The smallest known genome of a free-living but parasitic organism is that of Micoplasma genetalium, which is 0.2 of a micron long (a micron is a thousandth of a millimetre) and yet it contains 482 genes and a genome of about 500,000 base pairs. It is estimated to make about 600 different proteins. A completely independently free-living organism is Escherichia coli (E. coli), which has 4253 genes and a genome of 4,720,000 base pairs.

A typical eukaryote cell (i.e. one with a nucleus) contains about 40,000 different protein molecules and is acknowledged to be far more complex than any man-made object.

A small non-parasitic organism has a huge comparable complexity.

Copeland estimates that the simplest *theoretical single-celled organism would contain only 239 macro-molecules.* Allowing 4.5 billion years, and using all the atoms on earth, and allowing reaction rates to be one trillion times as fast as estimated, the chances of spontaneous assembly would be one in $10^{119,879}$ provided you allowed $10^{119,831}$ years to form it! Note that the estimated number of fundamental particles in the entire explored universe is "only"10^{80}!
(Copeland, *Evolution, possible or impossible?)*

The Genetic Code

The four bases Adenine (A), Thymine (T), Guanine (G) and Cytosine(C) can yield 4x4x4 = 64 triplets, but there are only 20 amino acids. Some amino acids coded for by more than one triplet and some triplets are stop signs, marking the end of a gene. Insulin has 51 amino acid and would require 153 DNA nucleotides to code it. Allowing for the fact that most amino acids can be coded for by more than one triplet, the chance of the gene for insulin forming are one in 7.67×10^{83}.

Considering that there are just 10^{80} fundamental particles in the entire explored universe, how futile it is to imagine that chance can produce anything worth while!
For an average enzyme, the figure would be about one in 10^{260}

Accuracy of Replication of DNA

The accuracy of DNA replication is one error in a billion nucleotides or better. It is comparable to a typist making only one mistake in a lifetime of work! In humans there are about 50 enzymes that are known to be involved in DNA repair. Defects in these repair systems lead to diseases such as cancer.

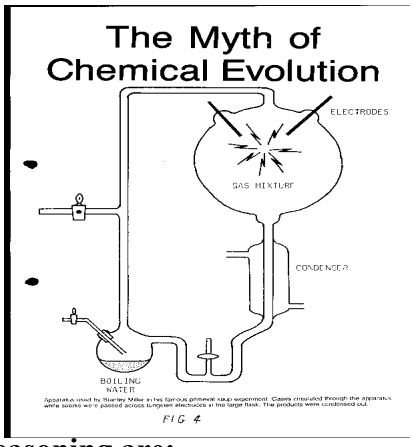
An important gene is the p53 tumour suppressor gene, which plays a critical role in cell-cycle regulation, causing a cell to stop growing if the DNA is damaged, and triggers the repair process. If the cell cannot be repaired, it is destroyed.

All these repair mechanisms oppose evolution, since this depends on random mistakes in the DNA getting through the many repair mechanisms.

Primitive Earth's Atmosphere

Evolutionists believe that the primitive earth's atmosphere contained no oxygen, but only gases like methane, ammonia, hydrogen, carbon dioxide and water vapour.

Miller and others have passed various discharges through the mixture andobtained very low yields of nearly all of the 20 amino acids and some 3 to 6 carbon sugars, and in some cases traces of adenine and porphyrins plus a lot of gummy material.



The *weaknesses* of the above reasoning are:

There is no proof of a reducing atmosphere
A 50% mixture of left and right-handed forms of amino acids is produced. Only the left-handed forms occur in living things.
In the above experiments, reaction products are quickly aspirated into a cool chamber
Only a few percent of the material were identified.

Ammonia, if present on a primitive earth, would have been decomposed by ultra-violet light to nitrogen in 30,000 years

Without oxygen there would be no ozonosphere, which today protects life from lethal solar radiation from 200-300nm. (One nanometre (nm) = one thousand millionth of a metre or one millionth of a millimetre) The conditions of the experiments are far removed from what a primitive earth was probably like.

My street address is:
44 Aireville Rise, Bradford, West Yorkshire,BD9 4ES
Tel: 01274 582959
My email address is: briancowell@blueyonder.co.uk