Compartive Anatomy

By Dr D. Brian Cowell,
B. Pharm., Ph.D.,
Member of the Royal
Pharmaceutical Society of Great Britian

Homologous structures are corresponding structures like the foreleg of a horse, the arm of a man, the wing of a bird or bat, the flipper of a whale and the fin of a fish. They are derived from the same embryonic rudiment, but are not necessarily derived from the same genes.

Analogous structures, e.g. the wings of birds and insects, the arms of a squid and a man, and the eyes of squids and vertebrates. These are said to be examples of convergent evolution.

The Hebrew **KIND** (baramin) were the original types that God created. They were far wider than the species of modern classification which are regarded as interbreeding communities. Man is one species.

Creationists believe that God made animals and plants "according to their KINDS (baramin). We do not know exactly what these were, but they were wider than the species, which, for our purposes is an interbreeding community. Breeders have produced many varieties of dogs, but dogs are still dogs. In nature breeds tend to revert to the wild type.

There is a built-in resistance to change beyond certain limits. Horses and donkeys will give a mule, but mules are infertile. The Cow genus includes European and Indian cows, bison, yaks and water buffalo, and these can be induced to cross breed giving partially fertile offspring. Dogs, wolves and coyotes don't interbreed in nature, but do in captivity giving fertile offspring.

Divergence occurs in nature. 100 birds from the same stock were introduced onto 4 Laysan Islands in the 1960s, and by 1980s, significant divergence had occurred in the design of their beaks. Similar divergence probably occurred in the finches discovered by Darwin on the Galapagos Islands. But they were still finches.

The differences are probably due to the expression of different genes in the genome, not due to any new information added.

Evolutionists extrapolate these changes as proof of microbes-to-man evolution, but there are no proven links in the fossil record to demonstrate this.

Mechanism of Evolution

(1) Natural Selection

Evolutionists assume that accumulation of advantageous variations will result in the forward and upward development of higher animals by survival of the fittest. The "fittest" may not be the strongest, but may be the fastest reproducers.

(2) Random Mutations

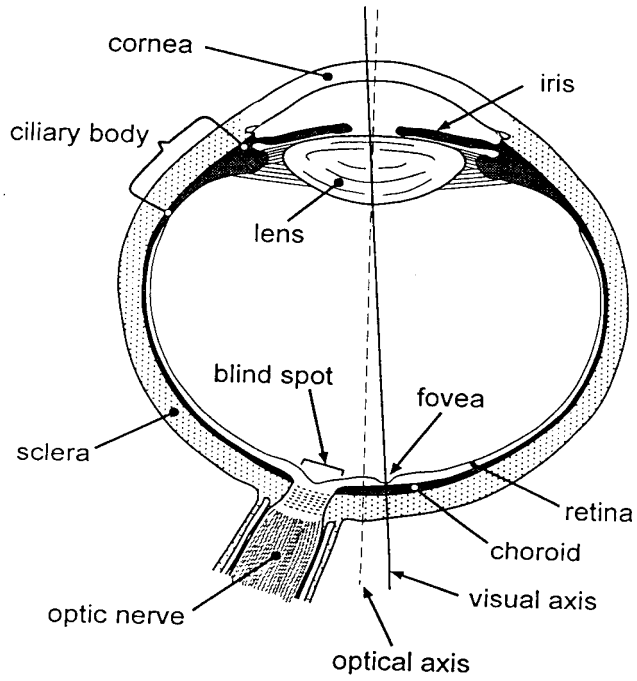
It has long been recognized that acquired characters are not inherited. Only changes in the genes are inherited. When genes divide there is a built-in mechanism for correcting mistakes accurate to 1 in a billion. Yet mistakes do occur, which appear to be random and mostly harmful.

But evolution depends on rare advantageous mutations, and sufficient of them occurring independently in a few individuals so that they will spread throughout the population. Those without the mutation will be eliminated by natural selection.

Point Mutations occur when one nucleotide "letter" or base pair is substituted by another. They are mostly harmful or neutral. We contend that large-scale mutations are invariably lethal.

A Challenge to Evolutionists: The Vertebrate Eye

Think of the new genetic information required to form the vertebrate eye from nothing:
(1) The photoreceptor cells of the retina require 15 biochemical reactions in strict order and only one in 1.3 trillion possible orders would work. One missing would cause blindness.



(2) The visual pigments for colour vision in definite locations.
(3) Complex muscular system controlling eye movements.
(4) Retina-brain link to the visual cortex.
(5) Astounding ability of the brain to combine two slightly different images in binocular vision and correction for optical distortion.

The biochemical reactions converting photons into nerve impulses take place in just one-tenth of a second and involve *retinal*, visual pigments and many enzymes. Hence a film running at 25 frames per second seems like continuous movement. With the fly, they run at 200 times per second. That's why you can't catch them!

Can you imagine all these adaptations coming about by random chance mutations with all the necessary new genetic information? All the biochemical

reactions would have to be in place from the start, and other changes would have to be advanced to have any selective advantage.

(3) Changes caused by the "switching on or off" of genes, or by transpositions of genes. Hox genes, (concerned with the development and shape of organs) have been proposed as a mechanism of evolution. All these changes are inherited and advantageous ones preserved by natural selection, but no information is added to the genome.

What causes these changes is not yet clear, but environmental changes coupled with hormonal changes may trigger them. This may account for the varieties of finches on the Galapagos Islands and the variation in the birds brought to the Laysan Islands in only 20 years. This is not evolution, but variation and adaption.

Crabs prey on snails with thin shells, but cannot eat snails with thick shells. In the presence of crabs, the snails adapt themselves and grow thick shells.

Several species of plant vary their stem height, stem number and flowering time as conditions vary from sunshine to shade and wet to dry.

The Peppered Moth

In the 1860s this moth was pale in colour, although a rare dark form was known to exist. During the industrial revolution, trees became somewhat blackened by soot, and so the dark form, less visible against a darker background, became more common. Now, with less pollution, the situation is reversing. Evolutionists consider this as evolution by natural selection.

The Peppered Moth never actually landed on trees!

Melanism in peppered moths, *Biston betularia*.

Bacterial Resistance to Antibiotics

Evolutionists cite development of bacterial resistance to antibiotics and other agents as examples of evolution in action.

Types of Resistance

(1) Built-in resistance by an already existing enzyme. Penicillinase occurs in many bacteria, and its primary purpose is not too clear. But in the presence of

sub-lethal amounts of penicillin, the organisms will develop more of the enzyme, and thus the whole colony will become resistant. Penicillinase has been discovered in organisms kept frozen since 1946 before penicillin was discovered. So the enzyme was already there. It did not develop by evolution**.**

(2) By infection with a virus that carries the gene for resistance.

This may be transferred from another bacterium or by a plasmid or virus which contains the gene for the enzyme which produces resistance.

(3) By Mutation

Streptomycin and related antibiotics bind to a specific site on the ribosomes (protein-synthesizing machines) of sensitive bacteria, which disables them and inhibits protein synthesis. The mutation changes the shape of the binding site and then streptomycin cannot then bind to it.

But these mutations reduce the efficiency of the ribosome by slowing down the rate of protein synthesis, and thus the viability of the organism in an ordinary environment. This may enable it to survive in the presence of the antibiotic, but the change in the ribosome makes the organism less viable.

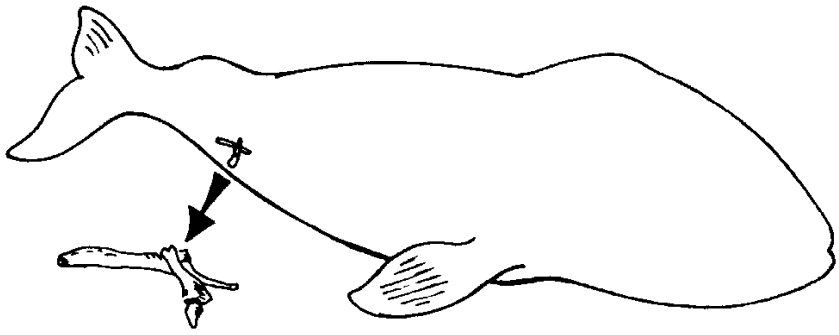
Vestigial Organs

These are organs that are much reduced in size in certain animals and serve only a subsidiary function compared with their counterparts in other animals. Evolutionists regard their presence as proof of descent from the animals with the fully developed organs. Now functions have been discovered for almost all these organs.

(1) **Hind limbs and claws of the Python.** These have a subsidiary function and are not useless.

(2) **Cartilaginous rods embedded in the flesh of whales** are not vestigial hind legs but support genital and other organs.

The Whale's Pelvic Girdle



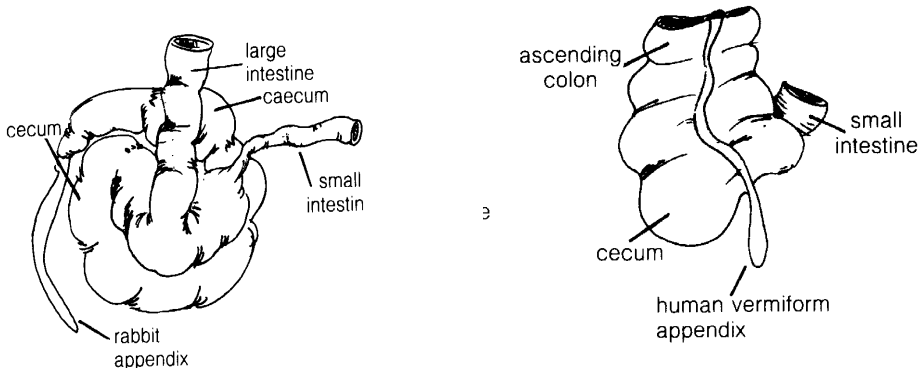
whale's pelvic girdle

(3) **Appendix in man,** though not large ın the adult, ıs comparatıvely large ın newborn.

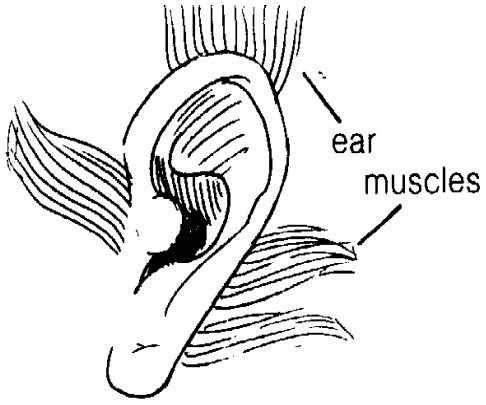
In the newborn, the appendix is full of lymphoid cells, and is an important part of the immune system. Removal is believed to increase the probability of development of neoplastic diseases (cancers).

(4) **Two semicircular menisci in the human knee joint** are not vestigial because they bear half the loading.

Appendix of Rabbit and Human



(5) Muscles of the external ear in man serve the subsidiary function of supporting the necessary vascular supply to the ears.



(6) Reduced wings of flies on islands. These are mutant strains which survive better on windy islands than winged forms. The same argument applies to blind cave fish.

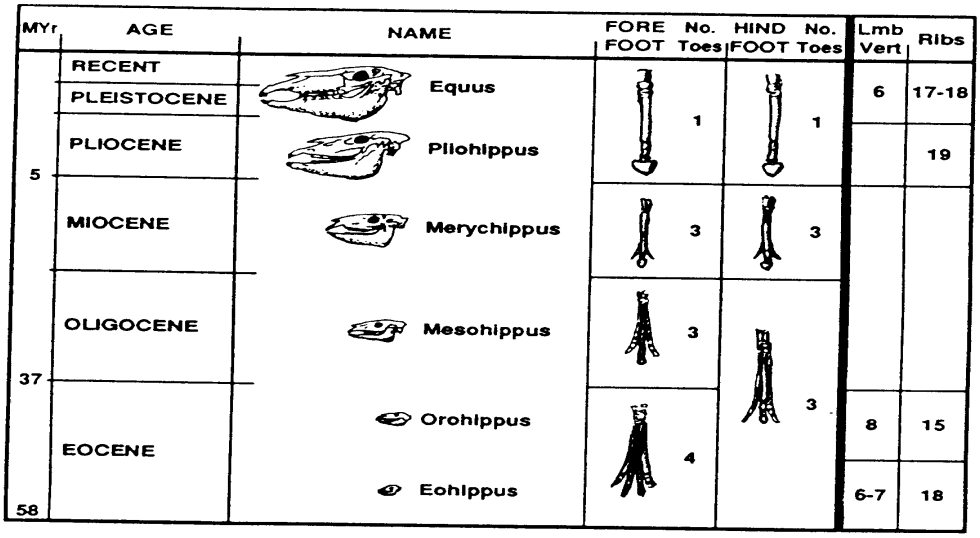
(7) Plica Semilunaris in the human eye is said to be a vestigial remnant of the nictitating membrane or third eye lid, present in the eyes of many animals.

Plica semilunaris of the human eye

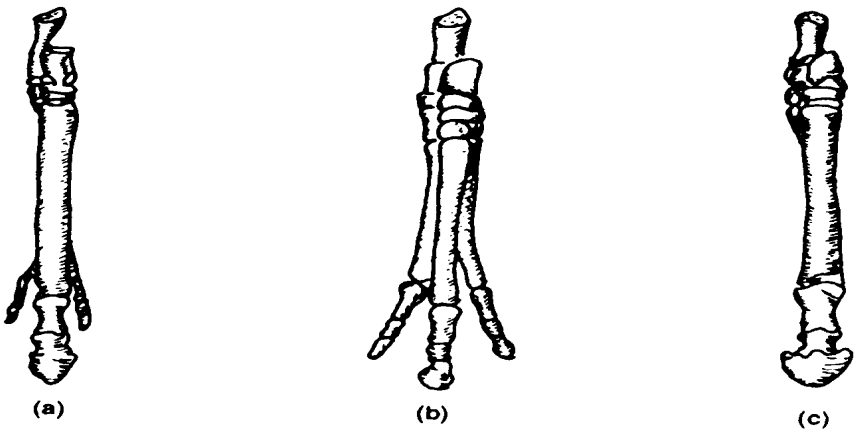
Nictitating Membrane of the owl

The pica semilunaris has an entirely different structure and functions from the *nictitating membrane.* This latter is an inner eyelid in birds, reptiles and some mammals that helps to keep the eye clean.

(8) Reduced toes during the alleged evolution of the horse, believed to have become redundant, performed a variety of important functions.



A. A TYPICAL CHART OF THE "EVOLUTION" OF THE HORSE



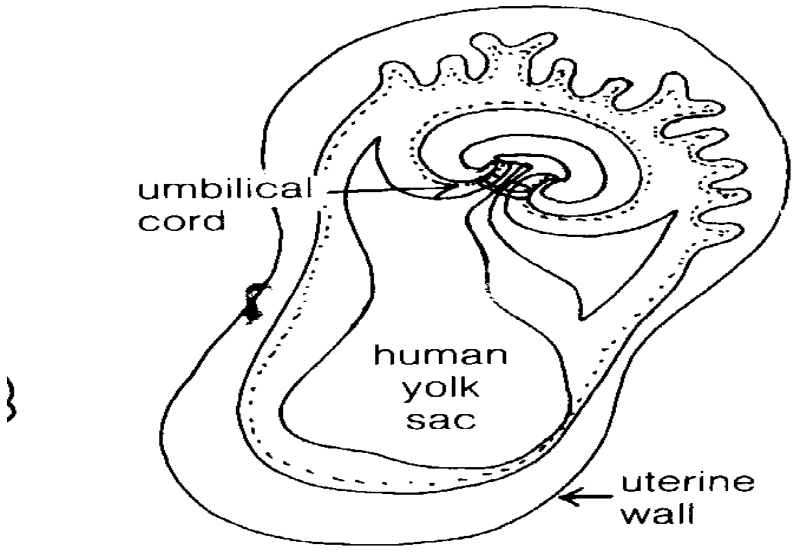
B. THE HIND FEET OF (a) Eohippus
(b) Merychippus
(c) Equus

(9) Human body hair is not vestigial and has several functions: (i) Hair follicles have muscles attached, the erector pili, which contract and squeeze out oil from sebaceous glands. Essential for skin, and cuts down heat loss. (ii) Enhancement of sense of touch, (iii) Hold perspiration in place.

(10) Wisdom teeth or third molars erupt from the ages of 15 to 22 or later and often function normally. Egyptian mummies had larger jaws, and our jaws today are smaller due to the soft food we eat.

(11) Coccyx and the so-called embryonic human tail consist usually of 4 fused vertebral bones at the lowest end of the vertebral column. It is not vestigial since it provides a point of attachment of several muscles. The so-called embryonic tail forms the basis of the human coccyx, and looks fairly long in the embryo. This is because there is disproportionate development of various parts of the human skeleton at this stage. Infants are sometimes born with a so-called "tail" or caudal appendage, which does not have any vertebrae or cartilage, but is covered with skin of normal texture and has a soft, fibrous consistency.

(12) Human embryonic yolk sac, appearing during the second week, functions to form blood cells in early stages of development, and gives rise to cells that later become sex cells. Portions of the yolk sac enter into the formation of the embryonic digestive tube.



(13) Plantaris muscles in the leg

The main muscles of the leg are large *gastroc-nemius* and *soleus* muscles and there is a subsidiary small *plantaris* muscle, thought by some evolutionists to be vestigial. However, all muscles are *sensory* as well as *motor* and convey to the brain the position and tension of the limb. The small plantaris muscle serves an important *sensory* rather than *motor* function.

(14) So-called Junk DNA

There is much DNA which does not code for proteins, and evolutionists have hastily called this "junk DNA." But now many functions are being discovered. There are genes for timing development, and Hox genes for determining shape and size of organs.

So-called pseudogenes are said to be genes whose function has been corrupted by mutations. Functionless genes would normally be lost in the course of evolution,

but some have functions. Large lengths of repeated elements in the genome may provide a scaffolding or structure to the DNA. Much more needs to be learnt.

There is really no such thing as a functionless organ, and the idea of vestigial organs runs counter to evolution that requires gradual development of new or "nascent" organs which don't exist in nature. Organs appear suddenly and fully developed, and many would be almost or quite useless until fully developed.

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