Thompson, who also discovered that their data did not support evolution. But, without turning their clocks back a century or more, what alternative could they embrace? Clearly, for them and others, evolution was not the "great unifying concept," but rather it appeared to be false and even an impediment in science. But the problem was to find an acceptable alternative theory.

Fortunately this no longer is the case. In the early 1960's the Creation Research Society pioneered in popularizing within the scientific community what commonly today is termed the Abrupt Appearance Model (or Theory). Because of the reasonableness of this concept thousands of scientists have experienced relief from a compulsion to force data into an evolutionary mold. It has become easier for careful investigators to go only as far as evidence is compelling, most often clearly a small amount of change (what some have termed microevolution). Even though currently some well-meaning scientists unfortunately are opposing our efforts, CRS members and other scientists have opportunities, unprecedented in the 20th century, for presenting the Abrupt Appearance Model as the best way to understand data from nature. Yes, there now is a well-supported and increasingly popular alternative to evolutionary thinking.

Wayne Frair

A CRITIQUE OF THE ALLEGED REPTILE TO MAMMAL TRANSITION

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Abstract

For many years evolutionists have claimed that of all major groups of plants and animals, the fossil record of the origin of Class Mammalia is easily the best. (Olson, p. 207). However it will be shown that the case for the reptile to mammal transformation is extremely shaky and is based largely on inference, supposition and wishful thinking. Although I quote large-scale time frames and use standard geological terms in respect of epochs, eras and periods, I do not imply my acceptance of the time scales. I use the time periods for the sake of argument, but even so, the fossils do not provide a strong case for evolution.

Introduction

First I will examine the general evidence in broad terms and second I will investigate the detailed paleontological features of the various fossil candidates for the alleged transformation. In both cases the conclusions drawn by evolutionists belong more to the field of speculation than to science. In broad outline, the standard theory of the origin of mammals is as follows:

1. 'Early' members of a class of reptiles known as the synapsids arose from *unknown* amphibian ancestors in the early Pennsylvanian period about 300 mya (million years ago). These early mammal-like reptiles (Order Pelycosauria) were differentiated from other early reptile-like reptiles (!) of the same period *from their 'first' appearance* in the fossil record. Unlike the other reptiles, the pelycosaurs possessed a small space—the temporal fenestra—in the cheek region of the skull, but the origin of this feature is unknown.
2. The pelycosaurs suddenly became extinct around the mid-Permian, some 260 mya, and a few million years later, in the late Permian, the first members of the next phase of mammal-like reptiles appeared (Order Therapsida), which ". . . evolved from an *unknown lineage* of the sphenacodonts (pelycosaurs)." (Kemp, 1982a, p. 581)
3. The therapsids had larger temporal fenestrae, and ". . . even at their *first appearance* the therapsids had *already diverged* into several groups." (Kemp, 1982a, p. 581)
4. At the end of the Permian some 230 mya, most therapsid groups became extinct and the first cynodonts made their appearance, equally as suddenly as the previous groups. The cynodonts, more mammal-like than the previous orders, dominated the Triassic period some 180-230 mya. They possessed cusped teeth and although some had impressive canines, many were herbivores. Their skeletal structure shows that they carried their bodies well above the ground and locomoted more or less like some land mammals.
5. According to Kemp the cynodonts also became extinct by the late Triassic, 180 mya, ". . . leaving only their tiny descendants—true mammals—to persist into the Jurassic and beyond." (Kemp 1982a, p. 583)

M. R. Dawson (1967, p. 12) tells us:

> . . . the fossil record presents a picture of several lines of therapsids approaching the mammalian level of development in the Triassic. It appears likely that at least three or perhaps six or more phylogenetic lines passed from the therapsid to the mammalian grade.

Personally I find one line hard enough to believe let alone six! Although Dawson does not name the six groups, a study of Romer's 1966 book (pp. 176-86) reveals that they probably were members of the sub-orders Theriodontia, Anomodontia, Ictidosauria, and included genera such as Diarthrognathus, Thrinaxodon and Cynognathus, all of which belonged to the Upper Permian to Late Triassic. A single genus (Diarthrognathus) appears to have persisted into the mid Jurassic, before becoming extinct.

6. The group in which I am most interested is the cynodonts, and the last lingering genera of the mammal-like reptiles also include Morganucodon, Kuehneotherium, Probelesodon and Probainognathus which are found in the Triassic/Jurassic deposits. These genera have attracted much debate and most evolutionists believe that all have a combination of

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mammal and reptile features, particularly in the skull, jaws and teeth. Such claims will be examined in more detail.

7. By the late Jurassic some 140 mya four allegedly distinct mammalian orders are believed to have been in existence—the multituberculates, the triconodonts, the pantotheria and the symmetrodonta. Opinions as to their status and to their alleged descendants vary widely and most fossils of this time consist of a few scraps of teeth and jaws. The actual reptilian ancestors are *not known.*

8. Even by the Late Cretaceous, some 80 mya, very little is known about mammals. M. R. Dawson (1967 p. 14) admits—". . . the postulated relationships (of early mammals) *among themselves* and with other (later) mammals are *highly speculative.*" On page 13, he also admits that the Mesozoic (Permian, Triassic and Jurassic) mammal fossil record is "woefully inadequate," which is rather strange as this era is just at the very time when the alleged "finest record of the origin of a major class" (Olson, 1966, p. 207) was taking place!

Of the Mesozoic, particularly the Late Triassic to Late Jurassic, where a huge time gap exists with only a pitiful handful of fossil scraps available, Olson (1966, p. 206) had this to say—"After the early Jurassic, a very curious thing happened. During the next 80 million years, very little seems to have gone on. It was a period of marking time." I find it truly amazing that 80 million years could pass with so little evidence!

In the upper Cretaceous of North America is found the 'oldest' marsupial—the opossum (family didelphidae) which is very similar to modern Virginia opossums. Like all the other orders, the marsupials appeared suddenly in the rocks without known ancestors.

9. By the early to mid Tertiary, 50 mya, we find a great radiation of mammals including all the 30 odd known orders, none of which is clearly linked to previous alleged ancestors nor to each other. (Simpson, 1944, p. 105)

Having broadly listed the various steps in the transformation we can clearly see that not one assumption in the whole process can be substantiated. There is no fossil proof that any of the so-called progressions actually took place and it is impossible to properly document the ancestry of the pelycosaurs, the therapsids or the later cynodonts. Of the mammal-like reptiles as a whole, Kemp (1982a, p. 583) writes—"The main groups . . . are more or less fully *evolved when they first* appear in the fossil record . . ."

Even down to the species level, evolution is in a great deal of trouble as Kemp (p. 583) further writes—"Each species of mammal-like reptile . . . appears *suddenly* in the fossil record and *is not preceded* by the species that is directly ancestral to it."

W. E. Sheele (1955, p. 24) wrote—"The first true mammals were small insectivores whose relationship to (reptiles) is not at all clear." F. J. Ryan (1956, p. 330) commented—"The origin (of marsupials) is extremely ancient and its sources are not known."

The fossil record of the monotremes (platypus and echidna) is very poor and attracts this comment by Australian zoologist Lyne (1967, p. 5)—"No intermediate forms between these highly specialized animals are known and they so little resemble each other that their relatively close relationship would hardly be suspected." Hugh Tyndale-Biscoe, Professor of Zoology in the Australian National University, Canberra, is totally unable to find the ancestors of even a single marsupial family! On page 30 of his 1973 book, *Life of Marsupials,* he published a fossil ancestry chart of all the marsupial families, living and extinct. Each family is designated by a solid line going back in time to form its known temporal range. *In every case* the solid line degenerates into the familiar dotted line which we so often see in evolutionary trees of life (phylogenies). The caption to the chart states—"Known records shown by closed (solid) lines, and probable but *unknown* relationships shown by dotted lines."

J. W. Valentine (1978, pp. 112-5) also published detailed ancestral phylogenies of the mammal-like reptiles and all of the mammalian orders. Once again, *in every case* the solid lines of ancestry quickly degenerate into the dotted lines which fizzle out into nothingness at the very stages at which we would expect to see some solid evidence of the transitions. Because nobody knows which mammal-like reptile gave rise to which mammal, the dotted hypothetical 'lineages' are therefore useless as evidence for the alleged transformations, as they are speculative. The real culprit is the fossil record which has failed to document the reptile to mammal lineage, just as it fails to document any evolutionary lineage, plant or animal! So disappointing is this that Ridley (1981, pp. 830-1) wrote—"(People) think that the main evidence for evolution is the gradual descent of one species from another in the fossil record . . . (however) the fossil record is useless for testing between evolution and special creation."

Of the fossil evidence in general, no less an authority than T. Kemp, Curator of Mammals at Oxford University Museum was quite frank. In a personal communication to me dated October 20, 1982, Dr. Kemp told me re: the lack of fossil evidence, that his view was that the fossil record is incomplete. He said that the other view, based on creationism, is that no intermediates ever existed and he continued—"Unfortunately, the absence of data (the missing transitionals), being negative evidence, does not permit us to distinguish between these two explanations." Readers can draw their own conclusions!

The Big Cop-Out

Since the main support for evolution, the fossil record, has proved such a failure, most evolutionist authorities resort to special pleading—the well-worn and unjustifiable concept of parallel evolution. This concept which includes convergence and the idea of polyphyletic origins is invoked incessantly to try and overcome the *hostility of the* fossils. The hostile aspect is of course expressed in a negative manner—the virtual total and systematic lack of transitional lineages and the existence of innumerable missing links, which should not exist were evolution true. As Kemp has already admitted, the *consistent failure* to find ancestral species leading to the development of new groups means that the paleontologists must rely on educated guesses, wishful thinking and speculation to establish 'lineages' which exist only on paper in the textbooks.

Working almost solely on skimpy skeletal features, they pick and choose their preferred lineages as Olson has to admit. Referring to the welter of reptile fossil specimens of the Triassic period (pp. 125-6), he conceded:

> There is almost no chance of making even reasonable guesses as to which of the known forms were close to lines that were eventually successful . . . because of the confusion of the ancestral stocks *it is difficult or impossible* to be sure that the genera placed in a single lineage did actually come from the same ancestor.

Further on the same pages Olson admits:

> The phenomenon of polyphyletic origins of groups *above the species level* appears to be quite common. Much is made of polyphyletic origins in evolution but mostly (it is) the result of *ignorance* on the one hand and *our own constructions of classifications* on the other.

Note how he shifts the blame from the fossils to the classification system, which as I will show is not at fault.

On page 186 Olson has to concede a *major weakness* of paleontology—". . . evolutionary transformations *must* have gone on. We determine the nature of these transformations by tracing them, but how they are traced *depends on the particular lines of descent that we envisage and these are often speculative."*

Now the various phantom lineages that exist on paper in the mammal-like reptiles and early mammals have their foundations in comparative anatomy—that is, the paleontologists select the most likely candidate in a lineage on the features which most closely resemble the 'preceding' fossil. They forget that *lateral variability* within a type can often be so great that members of the same species could easily be wrongly classified if they were found only as fossils—such as dogs, pigeons, horses and many others.

The appeals to parallel/convergent evolution and polyphyletic origins are so great that it is nothing short of scandalous, and even experienced evolutionists such as Gribbin and Cherfas (1981, p. 520), have publicly admitted that parallel evolution is a cop-out. The experts complain about the imperfection of the geologic record yet they do not hesitate to use that same imperfect record to construct lines of parallel evolution!

More Problems

The net result is that we cannot be sure at all that any of the published phylogenies in the reptile/mammal field is genuine and the stubborn fact remains that no fossil mammal-like reptile can be shown as being ancestral to any mammal. This is a farcicial situation aggravated by the lack of soft parts in the fossils where the *major differences* between reptiles and mammals would be clearly shown, such as mode of reproduction, mammary glands, method of breathing, hair or fur, etc. The monotreme platypus for example lays an amniote-type egg but this does not make it a transitional form between a reptile and a placental mammal. Luckily, this interesting creature is not extinct and only the fact that we can examine it and see that it is a unique type of mammal prevents the evolutionists from drawing up some sort of 'lineage' and placing it between say the cynodonts and the marsupials or placentals. Olson (pp. 194-5) has published a chart showing the monotremes as branching off from a separate *hypothetical* mammal-like reptile far distant from the other mammals. He shows about six groups of mammal-like reptiles as having crossed what he describes as the 'mammal threshold zone.' As fossil monotremes are only known from the Miocene, some *100 million years later* than Olson's hypothetical ancestor, his reliance on speculation is clearly shown!

Olson himself is a persistent offender as on p. 123 he shows a very impressive looking family tree of 16 reptile groups but we find on p. 124 that he admits the phylogeny is misleading, due to the widely scattered nature of the fossils in time and space, and the "great many gaps in the record." He says—"If we are willing to jump over these gaps *broad patterns* of evolution do emerge . . ." Creationists of course reject the invitation to jump over the gaps!

Despite all the means at their disposal, the evolutionists cannot explain the origins of any mammal orders, whether monotreme, marsupial or placental, so they take the easier way out as M. R. Dawson did as previously mentioned, and rely on speculation *which is not science.* One of Australia's leading experts on monotremes, Gordon Lyne, does not hesitate to evade the problem by claiming that—". . . the monotremes are *not closely related* to the marsupials and higher mammals, and they evolved *from a distinct group* of reptiles." (1967, p. 5) How does he 'know' this when there are no fossils to prove it?

Virtually all paleontologists believe that all the major mammal groups including the marsupials evolved independently, in parallel from different reptilian ancestors. A good example is the famous Tasmanian marsupial wolf, the Thylacine which bears many remarkable resemblances to the placental wolf, yet they are not related, and once again we have the usual appeal to parallel/convergent evolution. Both allegedly evolved from *separate ancestors* somewhere in the mysterious Mesozoic era, up to 180 mya and by amazing coincidence and chance mutations with natural selection they finished as look alikes. What sort of thinking is this? Both animals are *unique* types fully deserving their own separate classifications and there is no need to appeal to parallelism or evolution at all. They can just as easily be assigned to created types. Noted British evolutionist Francis Hitching is openly skeptical. (1982, pp. 176-80) Writing about alleged parallel/convergent evolution, Hitching writes—". . . the current explanation *explains nothing* . . . it seems highly unlikely that Natural Selection of chance mutations could have arrived at the same near-identical solution of adaptation."

Because of this idea of parallel/convergent evolution and polyphyletic origins we thus have no way of telling whether the pelycosaurs, therapsid and cynodont reptiles were in fact related evolution-wise or whether they were created, unique and separate groups. The evidence of the fossils (no convincing transitions) therefore is at least a strong prima facie case in favor of creation.

Taxonomy

The lack of transitional forms and of common ancestors and the heavy reliance on parallel/convergent evolution has created an enormous problem for taxonomy and classification. This problem is not due to the fact of evolution causing blurring between the classes, *but is due entirely to the assumption* that various organisms have evolved into others.

The classification system which originated long before Darwin was quite adequate until it became *loaded down by the unnecessary and unjustified concept* of evolution. The case of the reptile/mammal concept is a good illustration.

The diagnostics of class mammalia run to about a dozen main characteristics—l. A single lower jaw bone, the dentary. 2. A squamosal-dentary jaw joint. 3. Three bones in the middle ear (stapes, incus and malleus). 4. The organ of Corti (ear). 5. Teeth highly differentiated into canines, incisors and molars with complex cusps. 6. The mammalian diaphragm. 7. A number of post-cranial osteological features. 8. Live birth of the young (except monotremes). 9. Supply of milk to the young via mammary glands. 10. Hair or fur. 11. Self regulating heat control system, and a few others mainly connected with the excretory system.

What then are we to make of the monotremes which are egg-layers, have no teeth and have a different excretory system from placentals? Or the marsupials which give birth in the embryonic stage? Evolutionists *interpret* these things as being evidence that the monotremes and marsupials are 'primitive' in comparison with placental mammals and exhibit signs of reptilian ancestry (i.e. the egg laying of the monotremes).

But is this true? Of the earliest (Cretaceous) fossil marsupial, the opossum, Michael Denton (1985, p. 181) writes—". . . it was *already* at the level of living, primitive mammals such as the insectivores or the Virginia opossum." The Australian zoologist T. J. Dawson, (1983, pp. 1-2) wrote that the currently held theory that monotremes and marsupials represent the earliest stages of evolution and being on the way towards placentals, is *simplistic and now known to be misleading.* He further wrote on p. 51 that marsupials are *not inferior* to placentals.

Therefore there is no reason except for evolutionary preconceptions for believing the monotremes and marsupials to be primitive ancestral-like types for the higher placentals. They are not primitive and they hold their own in competition with placentals in every respect—defense and attack, temperature control, intelligence, adaptability etc. The only reason, for instance, which caused the fierce marsupial thylacine 'wolves' to become extinct was because of man—Australian farmers literally destroyed them to protect their herds of sheep, cattle, chickens etc.

Other Oddities

Once we question the status of monotremes and marsupials, we might also ask about bipedal dinosaurs (reptiles), toothless turtles (reptiles), marine reptiles with fins like fish, and the extinct flying reptiles. We may ask are penguins evolving towards 'marine birds'?—or feathered fish? Evolutionists of course, would scoff at such suggestions yet they accept the monotremes and marsupials as being types of semi-evolved mammals! Even Archaeopteryx has now been abandoned as a transitional between reptile and bird because the mere possession of some characteristics from two or more other groups is not sufficient to establish it as a transitional. Eldredge and Gould (1977, p. 147) dismiss the unique bird Archaeopteryx as a transitional and describe it as a curious mosaic. The reason is that this curious creature, although possessing apparently true reptile and true bird features, *does not possess any individual characteristics which themselves are in a state of transition.*

Clades, Cladistics

Due to the problems mentioned above, many modern paleontologists have moved away from the standard phylogenies and have embraced a form of classification called cladism which simply shows, in line form, which creatures resemble other creatures and the relationships in clades do not imply evolutionary connections. Some leaders in this field are in the British Natural History Museum and a prominent figure is Colin Patterson, the senior paleontologist who once admitted that he could not name a single, proven transitional in any branch of paleontology (1981).

Needless to say, the cladists have aroused the ire of the hardline evolutionists who continue to insist on belief in evolution despite the evidence, but Patterson's case as published in an issue of *New Scientist* (1982) is well worth study, and has proven to be an annoying thorn in the side of the orthodox transformists. Patterson writes on p. 305 that a cladogram reconstructed from the evolutionary viewpoint disagrees with a cladogram based on character analysis. He points out that the latest studies from the molecular field, particularly amino-acid sequences of RNA and DNA and other proteins line up far better with a non-evolutionary cladogram than with the predictions of standard evolutionary phylogenies. In fact the evolutionary predictions fail, which is because, in my opinion, the evolutionist phylogenies do not match the naturalness of a cladogram. Once again we see that there is nothing wrong with our classification system, as long as we do not burden it with the assumption of evolution. There is now powerful empirical molecular evidence which matches the natural classification system and disagrees strongly with any evolutionary approach to taxonomy.

Patterson (p. 306) states that cladistics call into question much of conventional evolutionary history and offers a new approach to comparative biology which has a *coherent, theoretical* base that is not necessarily tied to evolutionary theory and does not depend on Darwinian or neo-Darwinian presuppositions. Creationists need have no objections to cladistics as this system fits in very well with the natural taxonomy of creationist scientist of two centuries ago.

A More Detailed Examination

Since the evolutionary case is lacking in broad terms, it is time to take a closer look at the actual fossil evidence cited for the transition and see how it is interpreted.

One of the best technical works on the subject is by Alfred S. Romer whose famous textbook (1966, pp. 173-209) covers in detail, most of the reasons for evolutionists' acceptance of the cynodont (late Theraspsid) group as being ancestral to the early mammals. The so-called advanced therapsids are described in considerable detail by Romer and include a number of sub-orders and genera such as *Cynognathus*, *Thrinaxodon*, the Tritylodonts and the ictidosaurian Diarthrognathus, mostly from the late Triassic. The number of fossil specimens and variations in their structure make it almost impossible to accurately determine relationships between and within these groups and, to make matters worse, much of the fossil material is fragmented and disarticulated.

When one studies the various authorities one finds many different opinions on the classification and meaning of the advanced therapsids and the early mammals. Instead of locating and identifying actual ancestors, a process of generalization takes over which bogs down in parallelisms as the experts pick and choose various features from various reptiles and 'new' orders, families and even genera are 'created' from the available material. Then lineages are constructed which are to put it bluntly, very speculative.

For instance, some of the 'later' therapsids have a dentary larger than those found in 'earlier' specimens, and less pronounced lower jaw bones such as the surangular, the angular and the articular. Evolutionists call these smaller bones 'reduced,' i.e., in the progression from reptile to mammal, the dentary becomes larger and the other bones reduce in size almost to insignificance. However, what possible selection advantage such a slow and gradual series of steps would have for a reptile is difficult to comprehend—especially when each step was supposedly brought about by random mutations, not just in one line of reptiles, but in several lines independently and in parallel! We are truly being invited to believe in a miraculous series of blind events which had no purpose at any stage.

Some Cynodont Features

In McGowan's summary of reptilian, mammalian and 'intermediate' features of the various cynodonts, (1984, p. 138), it is notable that he allocates the lower jaw arrangement of cynodonts to the reptilian condition and not the 'intermediate' position, despite the large dentary, which in my opinion is correct. He includes this in his list of five cynodont features which are reptilian. He also classes five other features as mammalian and four which he describes as intermediate. One mammalian feature he lists is the forward sloping ilium, however, as he admits (p. 133) this feature also belonged to some reptiles such as certain dinosaurs and the pterosaurs and its status is therefore questionable.

The key points about the cynodonts are those four which McGowan describes as intermediate *in themselves*—

1. Cheek teeth with cusps which are not complex.
2. The jaw joint is formed between a hollow in the lower jaw and a flat surface in the skull (instead of a rounded knob). This 'intermediate' feature is found in the genus *Probainognathus* of the mid Triassic.
3. Prominent ribs confined to chest region, but short ribs in front of pelvis.
4. Legs not splayed like most reptiles but not quite vertically beneath body either.

Let us examine these so-called intermediate conditions—

1. *Differentiation of teeth.*
   While it is true that some cynodonts have specialized teeth such as incisors, canines and molars with simple cusps, we must remember that even some marine mammals such as dolphins and some species of whales have no differentiation and all their teeth are little more than sharp pegs—they have no incisors, no canines and no molars. Some mammals such as the monotremes have no teeth at all! In addition, there are reptiles with teeth and reptiles without them, such as turtles. This 'intermediate' condition is therefore inconclusive and cannot be used as definite evidence of a transitional stage.
2. *The Probainognathian hollow on the lower jaw.*
   I am a little puzzled by McGowan because the hollow in the lower is a reptilian feature. How can anyone describe a 'flat surface' on the skull as a protoglenoid into which the lower jaw fits? Only mammals have the hollow (glenoid) *in the skull* (not the jaw!), along with the scroll-like knob on the lower jaw which fits into the glenoid. To claim that the 'proto-glenoid' of Probainognathus is in the skull while the hollow itself is in the lower jaw makes one wonder at McGowan's objectivity.

   Of the much touted claim that Probainognathus had a double articulation (the reptilian quadrate-articular and the mammalian squamosal-dentary), Kemp (1982c, p. 271) stated: "A second much quoted feature of Probainognathus . . . is the secondary contact between the dentary and squamosal. In fact there is some doubt whether there is actual contact between these bones . . ." This 'intermediate' condition must therefore also be questionable.
3. *Prominent ribs confined to chest region, but short ribs in front of pelvis.*
   It is true that in mammals, the ribs are confined to the upper abdominal area and the lumbar region just in front of the pelvis is free of ribs. However, in the cynodont genus *Massetognathus* there are shorter ribs in front of the pelvis. It is purely a matter of opinion whether these shorter ribs are in fact a sign of intermediacy. It must also be remembered that in *all* mammal-like reptiles the neck region also carries ribs whereas in mammals there are none. This 'intermediate' condition must therefore also be suspect.
4. *Cynodont legs not splayed like other reptiles but also are not vertically placed beneath the body as in mammals.*
   McGowan has forgotten that not only mammals have their legs vertically placed underneath the body. As he correctly mentioned (p. 133), many quadrupedal and bipedal dinosaurs had this feature and they are all reptiles. Therefore his claim that the cynodont condition is an intermediate sign is not clearly demonstrated.

It must be further remembered that even among the cynodont group, *not one single genus* has all the mammalian, reptilian and 'intermediate' features as described by McGowan. This is why no actual ancestral group can be identified. It is no good picking about and taking one or two features from various families and orders and putting them together as a composite. Anyone can play that game and this is the reason why T. J. Dawson (1983, p.2) is forced to admit—"Good transitional stages *are not known* but some of the features . . . *probably* evolved within these advanced mammal-like reptiles."

Re-evaluation of McGowan's Comparison

It can now be seen that none of the four alleged intermediate features listed by McGowan can properly stand up to scrutiny and all four are therefore either questionable or irrelevant. The importance of a specimen which possesses features which are common to its own and another class, as evidence for a transition, is not of great importance. It is the *individual characteristics* of a candidate for a transitional form which count. It is true that some forms exist which display features common to another class, viz—

Archaeopteryx (bird)	Long bony tail, abdominal ribs (reptilian features)
Monotremes (mammal)	Egg laying of reptilian type
Cynodont reptiles	Large dentary, temporal opening high on skull (mammal features)
Dolphins (mammals)	Fish-like fins, undifferentiated teeth (reptilian feature)

It is noticeable that McGowan, when listing the bird and reptilian characteristics of *Archaeopteryx* (p. 117), is totally unable to show a single feature which *in itself* is transitional in form. Also, of Archaeopteryx, Stebbins and Ayala (1985, p. 54) noted: "In spite of the intermediate position of Archaeopteryx as a species, its *individual traits* are not transitional in character." This is the reason Eldredge and Gould (1977, p. 147) had to reject Archaeopteryx as an intermediate between bird and reptile. They wrote—"Curious mosaics such as Archaeopteryx do not count (as intermediates)."

Michael Denton (P. 109) said:

> Undoubtedly, if the various anatomical and physiological systems of the lungfish and the monotremes were all strictly transitional between fish and amphibian and between reptiles and mammals respectively, then the case for them being genuine transitional types would be far clearer.

Denton (p. 110) wrote about the little caterpillar-like organism called Peripatus which some evolutionists see as being transitional between the annelid worms and the arthropods. He stated that although Peripatus possessed some typical arthropod features and a typical annelid feature, it lacks transitory *individual features.* Denton says—"(These forms) provide little evidence for believing that one type of organism was ever gradually converted into another."

Characteristics common to two classes can be as equally due to creative design as to evolution and only if a characteristic is *clearly transitional in itself* would that be evidence for evolution.

Some Major Problems

Although one can see reasons for evolutionist reliance on forms such as the cynodonts, the experts often overlook many other major hurdles—

1. Reptiles have no diaphragm and therefore do not breathe like mammals. Their thorax is not a closed box and is not alternately expanded and contracted. In mammals the thorax is capable of expansion. The development, by rare chance mutations of the revolutionary fibro-muscular organ, the diaphragm, simply defies explanation as there is nothing like it in the whole reptile class. It is also required that each stage of the transition be advantageous to give the animal an adaptive edge over its rivals. What advantage which could accrue *in each step* defies explanation.
2. Who can explain the origin and development by the same process of such a complex and wondrously designed feature of mammal hearing—the organ of Corti? No fossil reptile displays any comparable complexity.
3. Who can explain, by rare mutations, the change from the amniote egg to live, placental birth in mammals?
4. Where did mammalian self regulatory temperature control originate?
5. How did reptile scales turn into mammalian hair or fur?

All these and many other macro changes would have had to take place more or less together by chance genetic mistakes over millions of years. It is not sufficient for evolutionists to call on parallel evolution or on mosaic evolution. For all these changes to occur *independently* several times is just asking too much and evolutionist biologists will have to develop something much more plausible if the theory is to survive!

The Jaw Joint and the Mammalian Ear

The strongest claim in the evolutionist arsenal is the alleged double jaw articulation in some of the later cynodonts. Two of the best candidates are *Morganucodon* (also known as *Eozostrodon)* and *Kuehneotherium,* both from the mid Triassic. It is generally claimed that not only did these creatures possess a squamosal-dentary (s-d mammal) jaw joint, but also a quadrate-articular (q-a reptilian) joint. However in fact both possessed a full complement of reptilian bones in the lower jaw and furthermore there was no reduction in the functional importance of the reptilian q-a joint (Gish, 1985, pp. 96-8).

Even though these creatures are sometimes considered as primitive mammals, (Gish, p. 97) the most striking characteristic of the accessory jaw bones is their *cynodont* (reptilian) character. The actual reptilian jaw joint itself was *relatively as powerful* in the mammal (!) *Morganucodon,* as it was in the reptile *Cynognathus* and that this was quite unexpected.

Although there is no doubt that *Morganucodon* and *Kuehneotherium* both had powerful and standard reptilian jaw joints, did they have a contact point between the large dentary and the squamosal and if so, was this an incipient mammalian type jaw joint? Unfortunately the pitifully small, fragmented and disarticulated fossil material makes this claim unresolvable and any claims are based on inference.

One fragment of jaw however was found with the quadrate bone *still in contact with the articular* (Gish,

p. 98), but there are *no fossils* showing the mammalian condition, i.e., the dentary in contact with the squamosal of the skull and it is therefore also a matter of inference only. It is extremely difficult to conceive how, if there was such a contact and if it was effective, an animal with two effective but very different types of musculature, with different types of arrangement of blood vessels and nerves etc. could function when it came to opening and closing of the mouth and chewing. It is again very hard to see what selectionist advantage would accrue to such a messy arrangement.

However, similar claims concerning two other reptiles with alleged double jaw joints have been questioned. Concerning the cynodont *Probainognathus* and the ictidosaurian *Diarthrognathus,* Gish (p. 99) quotes comments by Kemp of the Oxford University Museum and C. E. Gow. Kemp is quoted as stating that there is now some doubt as to whether there is an actual s-d contact in *Probainognathus,* and Gow is quoted as pointing out that several previous conclusions in regard to the morphology of the lower jaw of *Diarthrognathus* and its articulation with the skull were wrong.

All this confusion and the drawing of inferences is due to the small and very fragmented nature of the fossil material and it demonstrates again the dangers of making firm conclusions on such slender fossil evidence. To emphasize the paucity of the evidence for the alleged transition from reptile to mammal, Columbia University's Richard Goldschmidt wrote in 1952 (pp. 84-98) that the evidence was meager and that evolution had hardly an indication of intermediate forms in the so-called sequence.

Hearing—Auditory Bones

McGowan (p. 139) makes an attempt to visualize how the mammalian ear bone, the malleus, began as part of the lower jaw in the embryonic stage of mammals, and then articulated with the incus (the mammalian middle ear bone). He describes this as an 'embryonic' jaw-joint. From this he concludes that these two bones represented the articular and quadrate bones of reptilian ancestry. Such a conclusion once again is highly speculative because in not a single fossil is such a stage even suggested. Even though some lower reptilian jaw bones are very small, in every fossil case where the jaw was recovered intact, the quadrate and articular were firmly attached to the dentary, as in *Morganucodon.*

McGowan's claim that it is easy to visualize the linking of the articular and quadrate to the stapes to form the mammalian ear ossicles is an incredible statement. Reptiles have only one ear bone—the stapes, and *this applies to every mammal-like reptile* including *Morganucodon* and *Kuehneotherium* which are reptiles despite some claims to the contrary. In contrast to this, every mammal, living or fossil, has three middle ear bones—the stapes, the incus and the malleus. Gish correctly points out the sheer absurdity of the notion that the quadrate and the articular jaw bone of the reptile could work their way into the reptilian ear to eventually become the mammalian incus and malleus respectively. He writes (p. 100):

> This would have required that the stapes (columella) of the reptile became free from its attachment to the ear drum, and the retrarticular process of the articular gained an attachment to the ear drum (because the articular bone of the reptile supposedly became the malleus of the mammal, which is attached to the ear drum). Somehow the reptilian quadrate must gain its freedom, move into the middle ear *and insert itself between* the stapes and the malleus.

This revolutionary biological engineering feat would truly have required a miracle to occur. Each bone involved would have had to be refashioned precisely and linked perfectly into a new exquisitely complex hearing system totally different from the reptilian type. The animals concerned would have had to achieve some selection advantage *at every stage* and at the same time at least maintain adequate hearing and chewing abilities. Does the evolutionist seriously believe such fairy-tale science, if indeed it can be called science? To add to the evolutionist's problems, I notice that McGowan fails to mention one other major mammalian middle-ear hearing apparatus—the organ of Corti. This is an essential instrument of hearing in mammals and it is incredible in its complexity. In humans it is a spiral three millimeter diameter ridge of cells, containing about 20,000 rods and more than 30,000 nerve endings. As Francis Hitching admits (1982, pp. 92-3), nothing remotely as complicated can be found in the ear of any reptile, living or fossil, and he finds it hard to see how any transitional forms leading to it could have made the mammal ear slightly more perfect. I am not really surprised at Dr. McGowan's silence on this point.

Not only did new species of mammal-like reptile suddenly appear which were not preceded by a species directly ancestral, but as a consequence we find new families and orders similarly appearing without known ancestry. Boyce Rensberger (1982, p. 42) writes—"There should be lots of intermediate forms linking major groups. If, for example, reptiles evolved into mammals, there should be many gradational fossils between the two types. *Instead,* the paleontologists found more gaps than continua."

The 'Early' Mammals

Romer is understandably cautious in his chapter on the so-called early mammals (pp. 197-206), due to the extreme scarcity and fragmented nature of fossils in the Triassic-Jurassic periods of the Mesozoic. He admits (p. 197) that the monotremes are almost unknown as fossils and that the marsupials and placentals appear *only at the end of the Cretaceous,* some 120 million years *after* their supposed evolution back in the Triassic. Of the Triassic and Jurassic periods, Romer says (p. 197):

> Mammals *presumably* came into existence towards the end of the Triassic, but *we know extremely little* about their history during almost the entire span of the Mesozoic . . . almost all the early Mesozoic remains consist of *isolated* teeth or at the most, jaws; prior to the late Cretaceous we have *not one* satisfactory skeleton and *very little* skull material.

On p. 198 his frustration is noticeable when he complains that:

> Many of the diagnostic features of the class Mammalia relate to soft anatomy and physiology and hence *cannot be determined* from fragmentary skeletal remains . . . some of the supposed Mesozoic mammals may still be in, technically, a therapsid or semi-therapsid stage . . . the class Mammalia may be *polyphyletic* in origin.

He also admits to the dangers of drawing too positive conclusions from the Mesozoic fossils. (I only wish he and others had heeded this sound advice.) Orders allocated on this skimpy material to Mesozoic mammals are Triconodonts, Pantotheres, Symmetrodonts and the Multituberculates.

Romer says (p. 201)—"In the order Symmetrodonts we reach, *for the first time* in our recital of Mesozoic types, a group which *may* be related to the ancestry of the higher therian (placental) mammals." Such a statement surely reflects the uncertainty over the interpretation of the admittedly skimpy material and should be compared to the dogmatic statements made in other places by Romer himself and other vertebrate paleontologists. The Symmetrodonts are from the late Jurassic, still 40 million years after the alleged transition took place from the cynodont reptiles. Romer *speculates* about the possible interpretations of the evidence and the possible relationships between themselves and 'later' mammals, (pp. 199-201), but it is not until the late Cretaceous that he at last finds representatives of the two greatest living groups of mammals—the marsupials and the placentals. (p. 202-3) This is truly wondrous—over 100 million years of alleged evolution without conclusive evidence! I often wonder if evolutionists really think about how long is a million years let alone 100 million and consider the implications of such scanty evidence over such an immense amount of supposed time.

Of marsupial fossils in the late Cretaceous, Romer (p. 200-2) says—"it has often been *assumed* that the marsupials are the ancestors of the placentals . . . yet indeed we know primitive placentals *fully as old* as the earliest opossum-like (marsupial) forms." He speculates further—"Surely both the marsupials and the placentals have arisen from a common ancestral stock of which, as yet, we know little of early Cretaceaus age." Unfortunately for Romer and other evolutionists, the placentals and the marsupials are *clearly divided* from their first appearance! Such are the 'facts' of Mesozoic history!

As stated earlier some evolutionists believe that the reptile *Morganucodon* is actually a primitive mammal and possibly ancestral to monotremes, but T. J. Dawson (p. 4) admits:

> It is perhaps paradoxical that of the two basic types of early mammals, the Morganucodontidae were the most common and widespread, and yet the details of their relationship to their supposed descendants, the monotremes, are *still largely a mystery*.

Now the alleged time gap between *Morganucodon* of the late Triassic/early Jurassic and the *first* monotreme fossil remains of the Miocene amounts to over 150 million years. (T. J. Dawson, p. 7). With the scrappy evidence and the supposed enormous time gap it is no wonder that evolutionists find themselves in such confusion as to which bone or tooth belongs to which type of animal or alleged lineage. With regard to the sometimes claimed transitional nature of marsupials as being the in-between stage from monotreme to placental, T. J. Dawson (p. 51) is candid enough to admit that this assumption of inferiority of marsupials, especially in reproduction, is not correct.

The Biochemical Evidence

It is not only creation scientists who are attacking the modern evolutionary scenario. Even from within the general orthodox establishment, a number of authorities have recently stated their disillusionment with the state of the theory such as William Fix (1984) and Francis Hitching of the Royal Society (1982). A noted non-creationist Australian microbiologist, Michael Denton has now made a devastating attack (1985) based not only on the hostility of the fossils, but also on the molecular evidence.

Many people do not know that there are two powerful evidences against evolution. One is a negative factor—the virtual total lack of major, sound transitionals which are *absolutely required* to prove evolution beyond reasonable doubt. The other is a positive factor—the hostility of the comparative molecular structures which show unequivocally that late biochemical studies clearly reinforce the absolute division and separateness of each of the major classifications—families, orders, classes and phyla. This evidence I summarize from Denton's work. (pp. 274-306).

The amino acid sequence of a protein from two different organisms can now be readily compared, the differences between them can be quantified exactly and these results provide a novel approach to measuring the differences between species. Different types of protein exhibit different degrees of interspecies variation. Using the protein Cytochrome C, haemoglobin and other proteins, Denton found that organisms which were close in terms of their haemoglobin sequences were also close in terms of their cytochromes, *and the same was true of all other proteins examined.* He also found that the differences between organisms at the molecular level *corresponded with their differences at the morphological* (taxonomic) level. Thus biology now is armed with a strictly quantitative means of measuring the distance between two species and of determining the biological relationship.

It is now possible to use the cytochrome sequences to classify species into groups and these groups correspond precisely with the major groups arrived at on traditional morphological grounds.

After listing the findings (pp. 278-9), Denton states that the most striking feature is that each identifiable sub-class of sequences is *isolated and distinct* and that *no sequence or group of sequences* can be designated as intermediate with respect to other groups. Transitional or intermediate groups are *completely absent.* Using 33 comparisons between the bacterial cytochrome C of Rhodospirillum rubrum and non-bacterial eukaryotic cytochromes from man, lamprey (jawless fish), fruit fly, wheat and yeast, *all exhibit* a sequence divergence of between 64 and 67 percent! Dr. Denton correctly states that this is one of the most astonishing findings of modern science because it means that no eukaryotic cytochrome is intermediate between the bacterial cytochrome and the others; as far as the bacterium is concerned, all the eukaryotics are *equally distant.*

The bacterial kingdom has no neighbor in any of the diverse eukaryotic types and as Denton says, the links are well and truly missing. Exactly the same pattern is observed in all the higher groups and Denton found that when comparisons are made between insects and vertebrate groups, no group is found to be primitive or in any sense a link between the phyla Arthropoda and Vertebrata; each group is isolated and unique.

Exactly the same result was found *within* the phylum Chordata (vertebrates). Not only are the jawless fish (cyclostomes) separated cleanly from other vertebrates, the others are also *cleanly separated from each other;* i.e. bony fish, amphibia, reptiles and mammals. Denton says:

> There is *not a trace* at the molecular level of the traditional evolutionary series cyclostome to fish to amphibia to reptile to mammal! Amphibia, always considered intermediate between fish and other terrestrial vertebrates are in molecular terms *as far from fish as any group of reptiles or mammals.* This is astonishing. (p. 284)

Obviously the mammal-like reptiles cannot be compared as they are all extinct but as Denton works down through classes to orders and even down to families, *exactly the same* result is apparent. For instance, monkeys are totally distinct from the gibbons, apes and humans as a group and in turn, these themselves are just as equally isolated from each other!

Denton comments (p. 290) “Thus the molecules, like fossils, have failed to provide the elusive intermediates . . . ” On p. 292 he states—“. . . none of *the types* deemed intermediate or primitive (lamprey, opossums, monotremes) by generations of evolutionary biologists shows any sign of their supposed primitive status.”

Of course Denton is well aware of the claim that the biochemistry of ancient forms may have changed from their modern descendants in respect of the so-called molecular clock hypothesis, but his response (p. 291) is simple: “The only way to save evolution . . . is to make the ad hoc assumption that the degree of biochemical isolation of the major groups was far less in the past . . . There is however absolutely *no objective evidence* that this assumption is correct.” Further, the molecular structure would have had to alter dramatically *without corresponding major changes* in the morphology of the so-called living fossils.

Denton goes into much detail on this subject and impressively answers possible objections and he delights in referring to the living fossils, especially lungfish. The proteins of lungfish are just as far from the lamprey as any other fish, amphibian or mammal group! He points out that the lungfish is morphologically very close to its Devonian relatives while one of its closest relatives has undergone profound physiological and morphological changes which culminated allegedly in mammals and man himself! It is very difficult to understand why a protein functioning in the basically unchanging physiological environment of the lungfishes’ red cell should have undergone *precisely* the same number of beneficial mutations as a related protein evolving in a line subject to such global adaptional changes.

Denton (p. 306) sums up his 32 page chapter by observing—“. . . in the face of this extraordinary discovery, the biological community seems content to offer explanations which are no more than *apologetic tautologies.”*

Summary and Conclusions

It seems virtually certain that if we had living cynodonts and other therapsid types to examine, we would quickly see that these groups were unique animals within class Reptilia and would stand in relationship to each other and to mammals in somewhat the same way as marsupials and monotremes stand within class Mammalia to each other and to other types. When all the evidence is carefully considered, we find there is no need whatever to postulate evolutionary relationships between any of the major groups and in fact the separateness and uniqueness of all the higher taxa indicates a created origin for them with considerable variability *within* each group. A creationist explanation fits the evidence better than the transformist hypothesis.

References

Dawson, M. R. 1967. Recent mammals of the world. Ronald Press Company. New York.

Dawson, T. J. 1983. Monotremes and marsupials; the other mammals. Edward Arnold. London.

Denton,. M. 1985. Evolution; a theory in crisis. Burnett Books, London

Eldredge, N. and S. J. Gould. 1977. Tempo and mode of evolution reconsidered. *Paleobiology* 3:147.

Fix, W. R. 1984. The bone peddlers. Macmillan. New York.

Gish, D. T. 1985. Evolution; the challenge of the fossil record. Master Books. San Diego.

Goldschmidt, R. 1952. Evolution as viewed by one geneticist. *American Scientist.* 40:84-98.

Gribbin, J. and J. Cherfas. 1981. The molecular making of mankind. *New Scientist.* 91:520.

Hitching, F. 1982. The neck of the giraffe or where Darwin went wrong. Pan Books. London.

Kemp. T. 1982a. The reptiles that became mammals. *New Scientist* 93:581-3.

________1982b. Personal communication October 20.

________1982c. Mammal like reptiles and the origin of mammals. Academic Press. New York.

Lyne, G. 1967. Marsupials and monotremes of Australia. Angus and Robertson. Sydney.

McGowan, C. 1984. In the beginning. Prometheus Books. Buffalo, NY.

Olson, E. C. 1966. The evolution of life. Mentor paperback. New York.

Patterson, C. 1981. Personal letter to Luther Sunderland. *Bible-Science Newsletter* 19(8):8.

________1982. Cladists and classification. *New Scientist.* 94:303-6.

Rensberger B. 1982. Evolution since Darwin. *Science* ‘82 3(3):42.

Ridley, M. 1981. Who doubts evolution? *New Scientist.* 90:830-1.

Romer, A. S. 1966. Vertebrate paleontology. Third Edition. University of Chicago Press.

Ryan, F. J. 1956. The marsupials. Encyclopedia Britannica. 18:330.

Sheele, W. E. 1955. The first mammals. World Publishing Company. New York. p. 24.

Stebbins, G. L. and F. Ayala. 1985. The evolution of Darwinism. *Scientific American.* 253(1):84.

Tyndale-Biscoe. H. 1973. Life of marsupials. Edward Arnold. Melbourne.

Valentine, J. W. 1978. The evolution of multi-cellular plants and animals. *Scientific American.* 239(3):112-5.