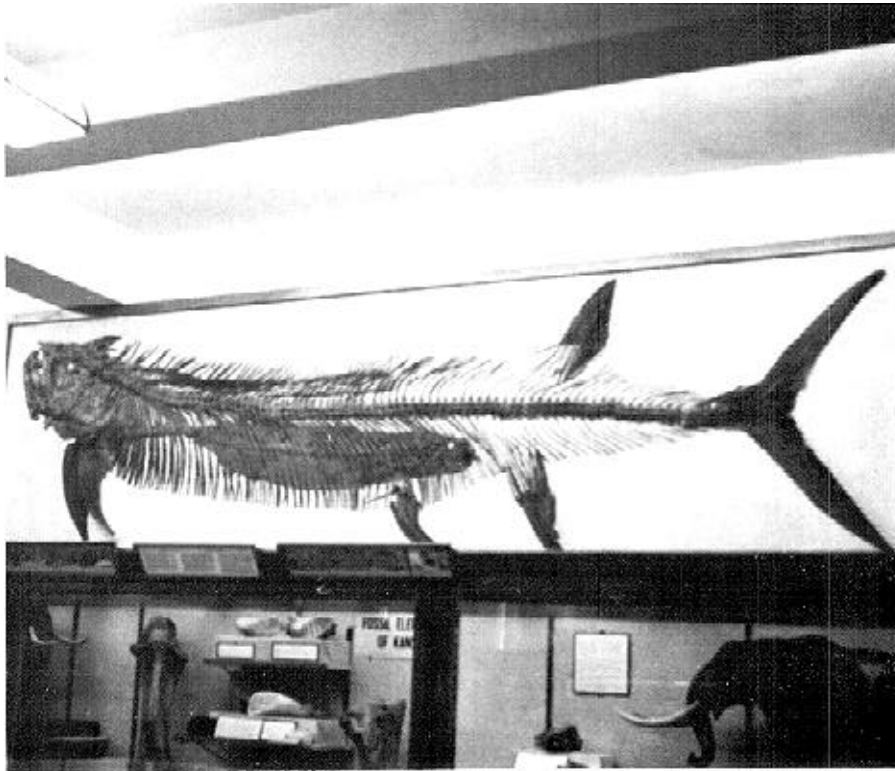


CREATION RESEARCH SOCIETY QUARTERLY



Haec credimus:

For in six days the Lord made heaven and earth,
the sea, and all that in them is and rested on the
seventh. — Exodus 20:11

CREATION RESEARCH SOCIETY QUARTERLY

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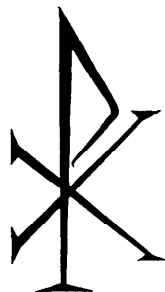
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COVER ILLUSTRATION

Apparently the 14-foot *Portheus mollosus* swallowed the six-foot *Gillicus arcuatus*, whereupon they both sank to the bottom of what is called the Cretaceous sea, where they became fossilized. The discovery was made by a member of the American Museum of Natural History, New York City, when he observed a few fins above ground. He mentioned the specimen to faculty members of Fort Hays Kansas State College, Hays, Kansas.

George F. Sternberg, director of the college museum, assisted by faculty members, collected the specimen intact from its place on a ranch in Gove County, western Kansas, prepared and preserved it, and put it on exhibition in the Hall of Paleontology on the college campus. Since 1952, when the specimen was found, it has attracted international attention.

The question remains, which one died first, *Portheus* or *Gillicus*?

Miss Mary Frey, formerly assistant professor at Fort Hays Kansas State College, who lives at 409 Halladay Street, Hays, Kansas 67601, supplied this picture. She suggests also that anyone who finds it hard to believe the story of Jonah might consider that the *Gillicus* is probably much larger in proportion to the *Portheus* than Jonah was to the great fish.

(Editor's note: It is also plain that the *Portheus* was active enough to capture the *Gillicus*; however, the larger fish was buried in sediment before digestion of the smaller fish occurred. Like so many other fossil finds, these fossils are evidence for a catastrophe of some kind.)

DESIGN IN THE HUMAN BODY

DAVID A. KAUFMANN*

Explanations of two examples of a pulley system, an example of a wheel and axle system, an example of lubricating discs in the joints, and an example of bone design in the human body are presented. These examples of complex design in the human body are further evidence of a divine creation and militate against belief in the philosophy of chance combination of molecules-to-man evolution.

Introduction

Many years ago the beneficial use of a pulley system was discovered by man by trial and error experience. It was later proven that a pulley system furnishes a means of changing the direction of a force by altering the angle of pull around a pulley wheel. It sometimes increases the magnitude of angular velocity of joint movement.

The common example of using a pulley to lift an automobile engine out of the hood area is well-known. Without a hoist acting as a pulley system this would be a difficult task. Engineers have "designed" many types of pulleys for use in gaining a mechanical advantage in other critical situations.

In the human body there are two significant structures that have been "designed" to act as a pulley system. They are at the knee and ankle joints.

The Knee Joint: A Pulley System

The knee joint, with the following structures, functions as a pulley system in the movement of extension:

A. The *quadriceps femoris* muscle group. Four muscles comprise this group: *rectus femoris*, *vastus medialis*, *vastus lateralis*, and *vastus intermedius*. Contraction of fibers of these muscles produces a force in the form of a pull on the *patella* and *tibia* bones (Figure 1).

B. The *quadriceps* tendon. This is a tough, inelastic cord that connects the *quadriceps* muscle group to the *patella* (kneecap), a hemispheric bone imbedded in the anterior portion of the knee joint (Figure 1).

C. The *patella* bone. This rounded triangular bone, which floats over the knee joint, acts as the pulley wheel of the pulley system (Figure 1).

D. The *patellar* ligament. Fibers of the *quadriceps* tendon blend into and pass over the *patella* bone to form this ligamentous band, which attaches to the *tibial tuberosity* on the anterior surface of the *tibia* bone (Figure 1).

E. The *tibial tuberosity*. This is a bump on superior, anterior surface of the *tibia* bone of the lower leg. It is at this point that the force from

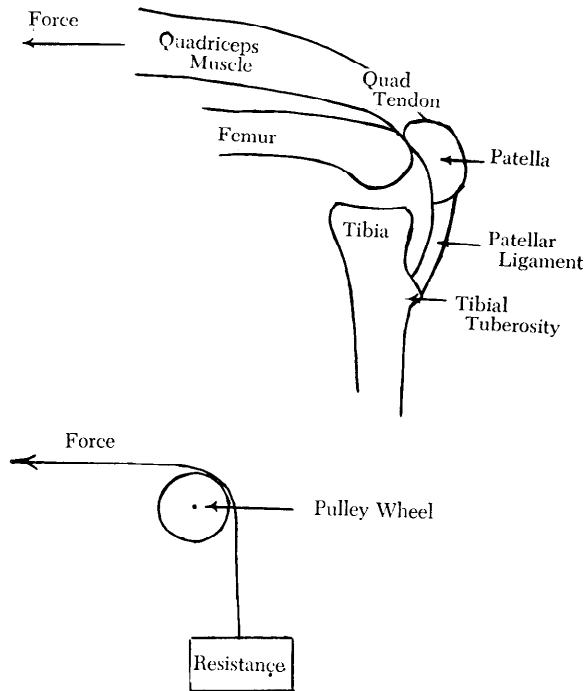


Figure 1. The knee joint, shown above, acts as a pulley system, shown below, as explained in the text.

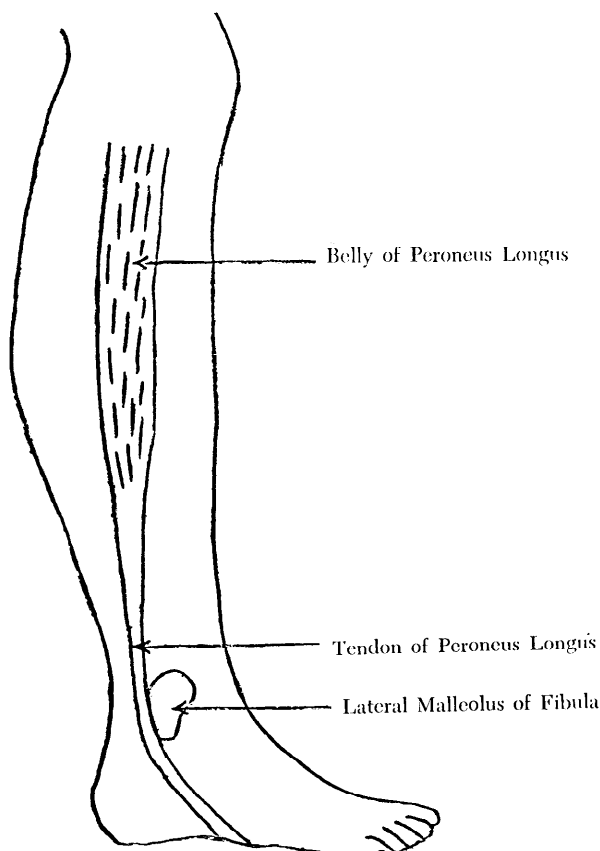
the muscular contraction is applied to the bony lever, the *tibia* (Figure 1).

The *quadriceps femoris* muscle group, the *quadriceps* tendon, and the *patellar* ligament act as the cable that is pulled, while the *patella* bone acts as the pulley wheel of the system (Figure 1).

The advantage of this mechanism is that by changing the direction of the application of force, a pulley-type muscle may provide a greater angle of insertion than would otherwise be possible. By passing over the *patella* bone, the *patellar* ligament inserts at a greater tension angle, i.e., the angle formed between the tension vector (F_T) and the axis of the bone.

The resulting pulley-like action increases the mechanical advantage of the system by lengthening the true effort arm, i.e., the perpendicular distance from the action line of the applied force to the joint center or fulcrum of the lever system. In this situation a change of direction of force achieves an increased effective torque in extending the knee.

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The Ankle Joint: A Pulley System

The talocrural (ankle) joint, with the following structures, functions as a double pulley in the movement of plantar flexion and eversion:

A. The *peroneus longus* muscle and tendon. This muscle originates on the *lateral condyle* of the *tibia* and the upper two-thirds of the lateral aspects of the *fibula*, the thin bone on the lateral side of the calf. It is inserted on the lateral side of the first cuneiform bone and the lateral side of the proximal end of the first metatarsal which are situated on the inner foot. Contraction of this muscle provides the pulling force for plantar flexion and eversion of the ankle joint (Figure 2).

B. The *lateral malleolus* of the *fibula*. This is a rounded process on the lower, *lateral fibula*. It acts as the first pulley wheel of the system (Figure 2).

C. The *cuboid* bone. This is one of the tarsal bones of the lateral foot. It acts as the second pulley wheel of the system (Figure 2).

D. The first *cuneiform* and first *metatarsal* bones. It is on the inferior surfaces of these two bones at the base of the big toe that the pulling force is applied (Figure 2).

The tendon of the *peroneus longus* proceeds down the lateral calf behind the *lateral malleolus*

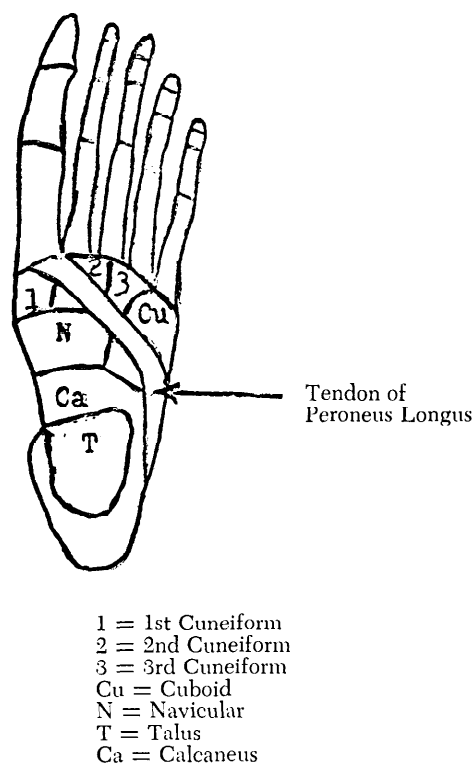


Figure 2. The *peroneus longus*, shown at the left, acts as a pulley system in moving the parts of the ankle and foot, shown at the right.

of the *fibula*, curves forward around its inferior end at an angle of about 60 degrees, passes forward along the outside of the foot to the groove in the cuboid bone, where it makes another turn of about 100 degrees and proceeds diagonally forward and across the bottom of the foot to the point of insertion at the base of the big toe (Figure 2).

Here is an example of a double pulley system where there are two changes of direction of the angle of pull. Contraction of the *peroneus longus* muscle plantar flexes the foot (i.e., extends the foot as in pointing the toes) and everts the foot (i.e., moves the lateral border of the foot away from the midline of the body in a frontal plane). Without the pulleys this muscle would insert in front of the ankle and on top of the foot, and action would be limited to only dorsiflexion of the ankle joint (i.e., moving the instep toward the *tibia* bone in a sagittal plane).

Did these two examples of pulley systems develop by chance due to purposeless applications of force over a speculated long period of time? Or were they devised and made operational by some supra-human Engineer to afford great versatility of movement in the highest member of the animal kingdom?

Is it not logical to believe, since intelligent human engineers devised the many pulley systems that are so useful in inanimate mechanical systems, that some Intelligent Divine Designer devised the magnificent pulley systems, which operate so efficiently in bone and joint systems of man?

Example of Wheel and Axle System

Also, in the human body, there is an example of bones functioning as a wheel and axle system. The following structures make up such a wheel and axle system:

A. The shoulder girdle. This oblong ring of bones consists of: 1. the two *scapulae* (shoulder blades), 2. the two *clavicles* (collar bones), and 3. the *manubrium* of the *sternum* (breastbone).

B. The rib cage. This is made up of 12 pairs of ribs which are attached to the *sternum* in front and the vertebral column in back.

C. The vertebral column. This is a row of 26 bones and 24 intervertebral discs by which the *skull* is attached to the pelvic girdle.

D. The pelvic girdle. This consists of the two hip bones. These bones and the *sacrum* and *coccyx* bones of the vertebral column make up the bony pelvis.

E. The muscles that attach to the shoulder girdle, rib cage, vertebral column and pelvic girdle.

The shoulder girdle, along with the adjunct rib cage, acts as one wheel. The vertebral column acts as the axle. The pelvic girdle acts as the other wheel.

In trunk twisting exercises, the oblique abdominal muscles pull on the trunk as though it were the rim of a wheel, and the trunk is rotated in the direction of the pull. This empowers dancers, athletes and workers to perform various twists and pivots. The wheel and axle system in the human body is even more versatile than the wheel and axle in automobiles, because the wheels in the human body can turn in opposite directions at the same time.

Are not these examples of mechanical advantage in the human body indications of supernatural design rather than the chance happenings imagined by proponents of mega-evolutionary belief?

Lubricating Discs in Joints

The reader might remember a television commercial for the Shell Oil Company in which the representative explained how engineers have developed discs of lubrication that are placed between the body and chassis of giant railroad freight cars. Such discs act as lubricating cushions between the joint structures of the railroad freight cars.

Has not the Divine Designer devised this same principle of lubrication in certain joints of the

human body? Tiny sacs containing lubricating fluid are situated in certain joints to perform the same function of the lubricating discs developed by the Shell Oil Company engineers. These sacs are called *bursae*, and if anyone has ever had bursitis, they know how important they are in maintaining normal functioning of their joints.

Is it not logical to conclude, since some brilliant human engineers devised these lubricating discs that reduce friction in giant railroad freight cars, that some Supreme Being Engineer devised and made operational the lubricating *bursae* that reduce friction in the joints of man?

If the lubricating sacs in man came about by random factors over a postulated long period of time, why did not the Shell Oil Company just wait around for the same thing to happen for lubrication of the chassis of railroad freight cars instead of hiring an analytical and creative human engineer to design the system?

Shell Oil Company could have saved a lot of money if this were possible. Of course, it is impossible, and this is why the creation model is best for explaining both the complex functional apparatus in both the joints of railroad freight cars and the joints of the human body.

Example of Bone Design

When an engineer designs a structure to withstand disrupting and crushing forces, he devises the structure to include stays which can withstand tensile forces and struts which can withstand compression forces. Also, human bone is so constructed that it can withstand both tensile forces and compression forces.

The tensile strength of bones is maintained by the structure of the bone, which was secreted by the *osteoblast* cells. The *periosteum*, including the outer fibrous layer and inner osteogenic layer, provides resistance to compression forces. Hence, bone shows considerable structural advantages over many constructional materials, such as cast or wrought iron and wood, which are strong in withstanding tensile forces but weak in withstanding compression forces. Yet bone is three times lighter and much more pliable than cast iron.

The tensile strength of bone has been demonstrated by experimental studies on rats¹ to be "35,000 lb/in² in average fracture stress to bending as compared to 40,000 lb/in² for cast iron." Also, it is claimed² that bone material is "three times as strong as timber and half as strong as mild steel."

Conclusion

In light of these facts, a person must ask these questions:

If a civil engineer designed the superior structures of steel beams and the like, did not some

Superhuman Engineer design the superior material and structure of our human bone system????

Is not ascribing these highly complex designs of pulley systems, wheel and axle, lubricating discs and bone structure in the human body to time, chance and environment an exercise in far-fetched reasoning?

Since analogous inventions in engineering have been developed by human minds with certain inventive powers, is it not more plausible to explain these precise working mechanical systems in the human body by the creative acts of an Intelligent Planner?

The great design in the human body is further evidence of a divine creation during some short unprecedented period of time and militates against belief in the philosophy of chance combination of molecules-to-man evolutionary development during some speculated long period of time.

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THE MAGNIFICENCE OF KINDS AS DEMONSTRATED BY CANIDS

HILBERT R. SIEGLER*

The author speculates about the degree of excellence with which the Creator first endowed the newly created kinds (MIN), and suggests that one manifestation of this past glory was the genetic variability with which each "kind" was endowed. The canids are used as an example to demonstrate this potential for variability.

The article proceeds to list the major categories of canids: 118 different breeds of domestic dogs and many types of mongrels, Pariah Dogs, Dingos, and seven true wild dogs; four different species of Jackals; five different species of wolves, among which the Gray Wolves and Coyotes are known to occur in a large variety of races; and at least 13 different species of Foxes. All four major categories of canids have been known to crossbreed.

While evolutionists consider these many varieties as results of evolutionary processes at work, the author argues that these varieties "devolved" from superior created canids, but within the boundaries of the MIN. He also suggests that creationists begin to use the term "baramin" when referring to "kind."

And God saw everything that he had made, and, behold, it was very good.

—Genesis 1:31

One can only speculate as to the degree of excellence with which the universe was started, and how this excellence was embodied in plants and animals first placed upon the earth. There remain, today, many manifestations of this past glory. One of these must surely be the fantastic variety of plants and animals found on earth.

There is strong evidence that the Creator in the beginning of time endowed each kind (MIN) with attributes superior to those found in the individual species existing today.¹ One very important attribute was the genetic variability these kinds possessed. This is demonstrated to a marked degree by the carnivores in the Family Canidae.

Members of this Family are distributed worldwide and seem to be absent, according to Walker,² only from New Zealand, New Guinea, Melanesia, Polynesia, the Moluccas, Celebes, Formosa, Madagascar, the West Indies, and

several other oceanic islands. Walker³ lists the following 14 genera:

- (1) *Canis* (Domestic Dogs, Wolves, Dingos, Coyotes, Golden Jackals, Black-backed Jackals, and Side-striped Jackals);
- (2) *Alopex* (Arctic or Polar Foxes);
- (3) *Vulpes* (Red Foxes and Kit Foxes);
- (4) *Fennecus* (Fennecs);
- (5) *Urocyon* (Gray Foxes);
- (6) *Nyctereutes* (Raccoon Dogs);
- (7) *Dusicyon* (South American Foxes);
- (8) *Atelocynos* (Small-eared Dogs);
- (9) *Cerdocyon* (Crab-eating Foxes);
- (10) *Chrysocyon* (Maned Wolves);
- (11) *Speothos* (Bush Dogs);
- (12) *Cuon* (Indian Dholes);
- (13) *Lycan* (African Hunting Dogs);
- (14) *Otocyon* (Big-eared Foxes).

Again one can only speculate how many of present day known canids are derived or were embodied in one God-created "kind" (or "baramin," as proposed by Marsh⁴). Jones presented^{5, 6}

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a strong argument from which one might conclude that the entire Family Canidae could have developed from one created "kind."

The writer, on the other hand, has suggested that the oft repeated phrase in Genesis "after its kind" indicates that different MIN are genetically unrelated, which would imply that the offspring of a MIN are genetically related.⁷

It is possible that both Jones and the writer are not too far from the threshold of truth concerning the subject. It is, in fact, conceivable that the problem lies with those modern day taxonomists who have been prone to create an unnecessarily large number of generic categories within the different Family categories.

The writer has contended that all living organisms, plants or animals, that have been known to interbreed, cross-breed, or cross-fertilize should be placed in one genus.⁸ If this criterion were accepted then all members of the Canidae known to interbreed would be classified as one genus.

Crossbreeding has been demonstrated among the following: Domestic Dog, Wolf, Coyote, Dingo, Arctic Fox, Red Fox, Asiatic Jackal, and Crab-eating Fox. Thus it would seem that Walker's *Alopex*, *Vulpes*, and *Cerdocyon* should also be placed in the genus *Canis*.

In fact, this has been done by various taxonomists. Among them are the Fienness⁹ who have reduced the 14 genera listed by Walker to 5, by placing all such carnivores in the *Canis* category with the exception of Dholes (*Cuon*), Bush Dogs (*Speothos*), African Hunting Dogs (*Lycaon*), and Big-eared Foxes (*Otocyon*).

While the possibility remains that all members of the Family Canidae can and would under certain circumstances crossbreed, a review of those groups known to crossbreed may make the reader aware of the vast potentials the Creator placed in just one created "kind."

Dogs

If genetic variability has ever been demonstrated, it is in *Canis familiaris*. The American Kennel Club,¹⁰ which maintains a catalogue of all breeds, lists dogs under the following six categories: Sporting Dogs (24 breeds), Hounds (19 breeds), Working Dogs (29 breeds), Terriers (20 breeds), Toys (17 breeds), and Non-sporting Dogs (9 breeds). The breeds vary in size from four pound Chihuahuas to some breeds which weigh as much as 180 pounds. However, non-breeds (or mongrels) probably show far greater variety in physical characteristics than the 118 listed breeds.

Along the eastern shores of the Atlantic through Africa, southern parts of the Balkan peninsula, the Caucasus and southern Asia, groups of dogs are found that differ from domestic dogs in that they are not attached to human masters. Many

live in and around human settlements where they scavenge for food. These dogs are collectively classed as Pariah Dogs.

Epstein¹¹ calls attention to two theories to account for their origin, namely, 1) that they represent a transitional stage between wild ancestors and domestic dogs; and 2) that they have descended from domestic dogs which have turned semiferal.

The Pariah Dogs also show a tremendous degree of variation from country to country. They vary in size from the fairly large Berber dogs to the Pomeranian sized Pariahs in Ethiopia. There is even a hairless variety in Africa.

In Australia and throughout the Indonesian Archipelago a semi-domesticated form of the Asian Wolf, called the Dingo, is found. It is believed that the dingos in Australia, where they turned feral, were originally brought there by aborigines from Asia.¹² This canid has not shown the marked tendency toward variety found in domestic and pariah dogs, although it does vary considerably in color.

There are also various species of truly wild dogs,¹³ among which are listed the following: Magellanic Dog (*Canis magellanicus*) in the forests and deserts of South America, Crab-eating Dog or Fox (*Canis cancrivorus*) in the forests and plains of South America, Small-eared Dog (*Canis microtis*) in Amazonia, Azara's Dog (*Canis azarae*) in the South American bush, Small-toothed Dog (*Canis parvidens*) in Brazil, Striped-tailed Dog (*Canis eurostictis*) in Brazil, and the so-called Gray Fox (*Canis virginianus*) in the United States and Central America. While the possibility exists that all may interbreed, it is known that the crab-eating dog has crossbred with domestic dogs.

Jackals

These canids have repeatedly been crossed with domestic dogs.¹⁴ The Golden Jackal (*Canis aureus*) occurs throughout southern Asia. The Gray Jackal (*Canis anthus*) ranges over much of North Africa. The Black-backed Jackal (*Canis mesomelas*) is widely spread over southern Africa, while the Side-striped Jackal (*Canis adustus*) is found in the Kilimanjaro area.

Jackals, particularly *Canis anthus*, occur in a variety of geographic races as evidenced in differences in body sizes, coat color, and skull measurements. These variations can be found in the Red Sea Jackal, East African Jackal, Egyptian Jackal, and the largest Egyptian wild dog not inferior in size to the wolf, the Nubian Jackal.

Wolves

Except for several breeds of dogs, some of the largest living canids are wolves. They apparently represent a vast reservoir of variability. In North

American taxonomists at one time recognized as many as 23 races of Gray Wolf (*Canis lupus*).¹⁵ Many scientists believe that the parent stock of the first domestic dogs were four major wolf groups.¹⁶ In addition, three varieties of Red Wolf (*Canis niger*) have been found in southern United States, the Maned Wolf of South America (*Canis jubatus*), the Abyssinian Wolf (*Canis simensis*), and the Coyote (*Canis latrans*), subdivided into at least eight different subspecies by Anthony.¹⁷

New strains are still appearing. In the early 1930's a type of wild canid hitherto unreported from New England was found. Intermediate in size between the Western Coyote (*Canis latrans*) and the Gray Wolf (*C. lupus*), it was variously identified as "brush wolf," "coyote," and "coydog."

After an eight year study, two game biologists from the New Hampshire Fish and Game Department, and a curator of mammals from the Harvard Museum of Comparative Zoology, finally determined that, since the genetic structure of these animals had been established to the point where they breed true, and on the basis of various anatomical features, this new canid should be designated *Canis latrans* var., and called Eastern Coyote.¹⁸ The authors concluded that "these animals have evolved from coyotes with the introduction of some dog and/or wolf genes sufficiently long ago for the population to have become stabilized."

Foxes

Like wolves, foxes show a tremendous variability in pelage, size, and relative proportions of various parts of the body. The Red Fox (*Canis vulpes*), for instance, is listed by Anthony¹⁹ as appearing in the form of twelve different subspecies. Foxes can mate with dogs, resulting in fertile offspring.²⁰

The following different species of foxes, in addition to the Red Fox, are listed by the Fienness²¹: Kit Fox (*Canis velox*), Arctic Fox (*C. lagopus*), Corsac Fox (*C. corsac*), Tibetan Fox (*C. ferrilatus*), Desert Fox (*C. leucopus*), Bengal Fox (*C. bengalensis*), Hoary Fox (*C. canus*), Raccoon Fox (*C. procyonoides*), Asse Fox (*C. chania*), Pale Fox (*C. pallidus*), Ruppel's Fennec (*C. famelicus*), and True Fennec (*C. zerda*). Each of these shows considerable variation.

Discussion

Even a cursory review of this great variety of species, subspecies, geographic races, and breeds found among the canids, will produce varied reactions among biologists, depending on philosophical approach of each individual to the subject.

Evolutionists find in these many differences much support for so-called evolutionary proc-

esses. For this reason they continue to apply the term "evolved" to the many changes found. This term is used by Fienness, Epstein, and Silvers throughout their publications cited in this paper.

The writer believes that the term "evolved," with the generally accepted implications of change toward the more complex, is utterly unacceptable, since no increase in complexity can be shown in any of the many resulting varieties. One's imagination would be stretched seriously were someone to suppose that the present tremendous variety of canids could have "evolved" from a beagle, or a red fox, or a western coyote, or for that matter, from any of the other canid species known today.

However, it is not unreasonable to think of superior created canids having the inherent genetic capabilities to give rise to a great variety of canids with lesser genetic capabilities such as beagles, red foxes, or western coyotes. If this assumption is correct, it would follow that the term to describe such a process of change should be "devolve" rather than "evolve." Scientists should talk about "devolution" rather than "evolution."

Whether this assumption is correct or not, the fact remains that creationists must soon develop precise terms relevant to many of the processes now described by biology textbook authors in words with evolutionary connotations.

The creationist, for instance, contends that the Genesis kind (MIN) has strict boundaries beyond which change (or "evolution") is impossible. He also concedes the fact that many varieties of plant or animal life can develop within these boundaries.

Therefore, creationists should recognize the importance of firm adoption of a word that will precisely describe the word "kind" as derived from MIN. Dr. Frank L. Marsh has suggested^{22, 23} the word "baramin." Unless someone proposes a better term, is it not time for wide acceptance and use of that word? Also is it not time that creationists substitute for the words "evolution" and "evolve" the terms "devolution" and "devolve," respectively?

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LEGENDARY EVIDENCE FOR THE CONFUSION OF TONGUES

JAMES E. STRICKLING*

Legends about a flood are about universal; this fact is strong evidence to show that the Noachian Flood was universal. Some investigation has been made to see whether legends of a confusion of tongues, such as that recorded in Scripture as having happened at the Tower of Babel, are also universal, or at least widespread. While such legends have not been found to be so common as flood legends, there are some about a confusion of tongues, and they are found in significantly separated parts of the world. Of course, belief in the truth of Scripture does not depend upon such legends, yet such corroboration is interesting and worthwhile.

(At one) time all the world spoke a single language and used the same words. As men journeyed in the east, they came upon a plain in the land of Shinar and settled there. They said to one another, "Come, let us make bricks and bake them hard"; they used bricks for stone and bitumen for mortar. "Come," they said, "let us build ourselves a city and a tower with its top in the heavens, and make a name for ourselves; or we shall be dispersed all over the earth." Then the Lord came down to see the city and tower which mortal men had built and he said, "Here they are, one people with a single language, and now they have started to do this; henceforward nothing they have a mind to do will be beyond their reach. Come, let us go down there and confuse their speech, so that they will not understand what they say to one another." So the Lord dispersed them from there all over the earth, and they left off building the city. That is why it is called Babel, because the Lord there made a babble of the language of all the world; from that place the Lord scattered men all over the face of the earth.

—Genesis 11:1-9 (New English Version)

Deluge. Why, then, are there so relatively few surviving accounts of the "Confusion"?

The confusion of tongues occurred only once, as did the Great Deluge. However, there was other widespread flooding during ancient times that depopulated great areas of the earth. Such catastrophes served to embellish and perpetuate the memory of the Great Deluge of Noah's day. Awareness of the confusion was not similarly strengthened.

Ancient Non-Biblical Account

The oldest non-Biblical account of this event is found on an ancient Assyrio-Babylonian tablet now housed in the British Museum. The tablet is not in very good condition, only a few lines

Introduction

Unlike the world-wide proliferation of flood legends, there is no great abundance of extant legends concerning the confusion of tongues. This dearth of accounts seems somewhat strange at first thought for two reasons. First, the Great Deluge is of greater antiquity than the confusion of tongues.

Furthermore, there were many people who experienced the "confusion," and members of each group could contribute to perpetuation of the memory of such an event; whereas the Bible emphasizes that only one family survived the Great

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being in any way complete. It reads as follows:

..... them the father.
(The thoughts) of his heart were evil
the father of all the gods he turned from.

(The thoughts) of his heart were evil
..... Babylon corruptly to sin went and
small and great mingled on the mound.

..... Babylon corruptly to sin went small
and great mingled on the mound.

The King of the holy mound

In front and Anu lifted up to the
good god of his father

Then his heart also which carried a
command

at that time also which carried a
command

At that time also he lifted it
up

Davkina.

Their (work) all day they founded to their
stronghold in the night entirely an end he
made.

In his anger also the secret council he
poured out to scatter (abroad) his face he
set he gave a command to make strange their
speech

..... their progress he impeded

..... the altar

.....

In (that day) he blew and

For future time the mountain

Nu-nam-nir went

Like heaven and earth he spake

His ways they went

Violently they fronted against him

He saw them and to the earth (descended)

When a stop he did not make of the
gods

Against the gods they revolted
violence

Violently they wept for Babylon very much
they wept.

And in the midst ¹

Account According of Josephus

The Jewish historian Josephus (37 A.D.-c. 100 A.D.) provides a detailed account:

The three sons of Noah—Shem, Japhet and Ham—born a hundred years before the deluge, were the first to descend from the mountains to the plains and to make their abode there; the rest, who by reason of the flood were sore afraid of the plains and loath to descend from the heights, they persuaded to take courage and follow their example. The plain where they first settled is called Senaar (Shinar). God bade them, owing to increasing population, to send out colonies, that they might not quarrel with each other but cultivate much of the earth and enjoy an

abundance of its fruits; but in their blindness they did not harken to Him, and in consequence were plunged into calamities which made them sensible of their error. For when they had a flourishing youthful population, God again counselled them to colonize; but they, never thinking that they owed their blessings to His benevolences and regarding their own might as the cause of their felicity, refused to obey. Nay, to this disobedience to God's will they even added the suspicion that God was plotting against them in urging them to emigrate, in order that, being divided, they might be more open to attack.

They were incited to this insolent contempt of God by Nebrodes (Nimrod), grandson of Ham the son of Noah, an audacious man of doughty vigour. He persuaded them to attribute their prosperity not to God but to their own valour, and little by little transformed the state of affairs into a tyranny, holding that the only way to detach men from the fear of God was by making them continuously dependent upon his own power. He threatened to have his revenge on God if he wished to inundate the earth again; for he would build a tower higher than the water could reach and avenge the destruction of their forefathers.

The people were eager to follow this advice of Nebrodes, deeming it slavery to submit to God; so they set out to build the tower with indefatigable ardour and no slackening in the task; and it rose with a speed beyond all expectation, thanks to the multitude of hands. Its thickness, however, was so stout as to dwarf its apparent height. It was built of baked bricks cemented with bitumen to prevent them from being washed away. Seeing their mad enterprise, God was not minded to exterminate them utterly, because even the destruction of the first victims had not taught their descendants wisdom; but he created discord among them by making them speak different languages, through the variety of which they could not understand one another. The place where they built the tower is now called Babylon from the confusion of that primitive speech once intelligible to all, for the Hebrews call confusion "Babel." This tower and the confusion of the tongues of men are mentioned also by the Sibyl in the following terms: "When all men spoke a common language, certain of them built an exceeding high tower, thinking thereby to mount to heaven. But the gods sent winds against it and overturned the tower and gave to every man a peculiar language; whence it comes that the city was called Babylon." And

as concerning the plain called Senaar in the region of Babylon, Hestiaeus speaks as follows: "Now the priests who escaped took the sacred vessels of Zeus Enyalios and came to Senaar in Babylonia."

From that hour, therefore, they were dispersed through their diversity of languages and founded colonies everywhere, each group occupying the country that they lit upon and to which God led them, so that every continent was peopled by them, the interior and the seaboard alike; while some crossed the sea on shipboard and settled in the islands. Of the nations some still preserve the names which were given them by their founders, some have changed them, while yet others have modified them to make them more intelligible to their neighbors.²

Various Indian Tribe Accounts

The Thlinkuts are an Indian tribe inhabiting the Pacific Coast of Canada. They possess the following tradition:

There was a great flood. Many persons escaped drowning by taking refuge in a great floating building. When the waters fell, this vessel grounded upon a rock and was broken into two pieces. In one fragment were left those whose descendants speak the Thlinkut language. In the other remained all those whose descendants employ a different idiom.³

From the Swinomish in the Northwestern U.S.:

Three sisters built a very high house, a long time ago. They made it tall because they wanted to go up to the sky to see the Creator. They kept building it higher and higher and higher. By the time the house was finished, they could not speak the same language. They could not understand each other. That is why there are so many languages today.⁴

Indians of the Columbia River Basin have a legend of a good coyote giving different languages to people according to their tribe.⁵

The Skagit Indians of the Northwest United States tell of new people being created from the bones of people killed by the flood. They were then given the power of speech, but they spoke many different languages. They were separated according to their language and sent to places occupied prior to the flood.⁶ Moving southward:

It is found in the histories of the Toltecs that this age and the first world, as they call it, lasted 1716 years; that men were destroyed by tremendous rains and lightning from the sky, and even all the land, without the exception of anything, and the highest mountains were covered up and submerged in water fifteen cubits; and here they add other fables of how men came to multiply from the few

who escaped this destruction in a "toptlipet-locali," which nearly signifies a closed chest; and how, after men had multiplied, they erected a very high "zacuali," which is today a tower of great height, in order to take refuge in it should the second world (age) be destroyed. Presently their languages were confused, and, not being able to understand each other, they went to different parts of the earth. The Toltecs, consisting of seven friends, with their wives, who understood the same language, came to these parts, having first passed great land and seas, having lived in caves, and having endured great hardships in order to reach this land; they wandered 104 years through different parts of the world before they reached Hue Hue Tlapalan, which was in Ce Tecpatl, 520 years after the flood.⁷

The Aztecs also had a tradition of a flood and of a confusion of languages.

They say that humanity was wiped out by a flood, but one man, Coxcoxtli, and one woman, Xochiquetzal, escaped in a boat, and reached a mountain called Colhuacan. They had many children, who were dumb until the time when a dove on top of a tree made them the gift of languages; but these differed so much that the children could not understand each other.⁸

From Guatemala:

After consulting together, Hurakan and Gucumatz (the givers of life) decided to make four men of yellow and white maize. But as they were too perfect, the gods shortened their sight. During their sleep, they created four women, and these were the ancestors of the Quiche tribe. However, they complained that they could not see clearly, for the sun had not yet appeared, so they went off to Tullan where they learned about their gods. It was very cold there, and they received fire from Tohil (Hurakan). But the sun did not appear, and the earth remained damp and cold. Speech was divided, and the ancestors no longer understood each other. They then left Tullan guided by Tohil and came to the Quiche country. There at last the sun appeared, followed by the moon and the stars. In their delight, animals and men sang a hymn, and offered the gods blood from their ears and shoulders. Later they thought it better to shed the blood of victims.⁹

There is yet another Jewish reference.¹⁰

Thereupon God turned to the seventy angels who encompass His throne, and He spake: "Go, let us go down, and there confound their language, that they may not understand one another's speech." Thus it

happened. Thenceforth none knew what the other spoke. One would ask for the mortar, and the other handed him a brick; in a rage, he would throw the brick at his partner and kill him.*

The Roman poet Ovid (B.C. 43-c. 17 A.D.) recorded a story that in some respects bears a striking resemblance to the story of the construction of the Tower of Babel, even though it is in a highly mythological context. My opinion is that this account reflects an actual event (natural catastrophe), but one not associated with the Tower of Babel and Confusion of Tongues. Even so, it is an interesting similarity.

. . . . they say that the Giants essayed the very throne of heaven, piling huge mountains, one on another, clear up to the stars. Then the Almighty Father hurled his thunderbolts those dread bodies lay o'erwhelmed by their own bulk. . . .¹¹

Half of the above legends are associated with a flood. This generally brings to mind the Great Deluge of Noah's day, and, possibly because of this association, the time of the confusion is assigned to a period of great antiquity. There is also an inclination on the part of many to assume that the Bible infers that the entire population of the world inhabited the region surrounding the Tower of Babel. However, the following points should be considered:

1. The Genesis account states, ". . . the Lord there made a babble of the language of *all the world* . . ." What is the reason for a global-view at this point if the population was relatively confined geographically?

2. In whose eyes were the builders of the Tower concerned about making a name for themselves?

3. There is a Jewish legend that associates the Tower of Babel with the time of Abraham, as follows:

And it came to pass that Abraham, who was then in his 48th year, heard of the mighty tower which was benig built in the valley of Shinaar. He travelled to the valley and endeavored to make the builders desist from their sinful undertaking, but they refused to listen to him. Abraham thereupon prayed to the Lord of the Universe: "God Almighty," he prayed, "confuse their language and scatter them over the face of the earth."¹²

Flood Legends

The Bible states that Noah and his family were the sole survivors of the Great Deluge. Since Noah knew and was forewarned by the One True

God, it would not be logical to assume that he and his family fabricated tales of the flood involving mythological gods. However, flood legends from many cultures relate to gods that can be associated with specific planetary bodies and/or astronomical phenomena.

In another article,¹³ I attempted to show that non-Biblical flood legends embody accounts of events associated with two or more flood disasters. The legends attest to many widely scattered groups of survivors following at least one of those catastrophes. The survivors associated the flooding they experienced with the observed planetary dieties referenced in the legends.

Descendents of the survivors could make no distinction between similar catastrophes of an earlier time which they did not experience. They related aspects peculiar to the Great Deluge, e.g., forewarning, preservation of other seeds of life, etc., with pagan dieties associated by their predecessors with subsequent flooding.

The association of many of the Confusion legends with a flood, the legendary association of the Tower of Babel with Abraham, and the indication that world flood legends reflect two or more flood catastrophes collectively point to a flooding catastrophe after the Great Deluge and prior to the confusion of tongues.* Therefore, any attempt to determine the time of the Confusion is in no way constrained by the antiquity of the Great Deluge.

Some Observations

The legends cited represent a widespread but disjointed geographical distribution. They span nearly the entire length of the North American continent, but other than that are limited to Mesopotamia. That the entire globe had been populated by the time the Confusion occurred might be argued from this distribution and the variances between the legends; although such a conclusion is by no means necessary as legends can be spread and changed when people migrate later. Also one might argue for a great time span between the Great Deluge and the Confusion on the same basis.

Aside from legends, place-names contain another clue to events in the ancient past. On the basis of a fascinating study of such names, J. D. Cohane¹⁴ contends that in ancient times there

*Perhaps this is the implication in Genesis 10:25: ". . . one was named Peleg, because in his day the earth was divided. . . ." (by water?)

Velikovsky contends that the Great Deluge occurred between 9,000 and 5,000 B.C. The third millinium B.C. emergence of our earliest civilizations would seem to involve a later flood. When the secular catastrophists point to the re-emergence of these civilizations after the flood, there is reason to argue that it was not the Great Deluge.

*Accounts from Canada and India during the last decade attest to the reality of the difficulties engendered by linguistic differences within a social or political unit.

were two extensive Semitic migrations. The first covered the entire globe. The second covered smaller areas of both hemispheres.

The first migration was a dispersion following the Great Deluge—with the implication that Noah's language would today be classified as Semitic. The second Semitic dispersion radiated at a much later date from the Tower of Babel following the confusion of tongues.

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ON THE RAPID FORMATION OF BEACHES AND A GRADED SERIES OF FLATTENED AND ROUNDED STONES

WALTER E. LAMMERTS*

Introduction

The question often arises as to whether it is reasonable to believe that the evident and comparatively superficial land formations and surface features could have arisen since the Noachian Flood described in Genesis 7 and 8 in 2349 B. C.

By land formations reference is made to erosion resulting in valleys, flood plains, and terraced beaches far above the present level of relict lakes. Lake Bonneville, Lahontan, and Mono Lake where the shore line is 700 feet above the present lake level are two examples of such remnant lakes.

Flood geologists explain these raised beaches in terms of gradually subsiding flood waters.

However, objections are usually raised that this amount of erosion could hardly have taken place in only 4300 years. Accordingly the following observations at the San Luis reservoir near Los Banos, California, are pertinent. Surprisingly rapid beach and terrace formations have occurred.

San Luis Reservoir Described

This reservoir covers 13,800 acres when full and is 304 feet deep. It has a 65 mile shore line,



Figure 1. General view of San Luis Reservoir. Pacheco Pass is toward the upper right.

took about one year to fill, and was not completely filled until the spring of 1969.

The prevailing winds are from the west, and often in the summer reach a velocity of 40 miles per hour, due to the cool moist coastal air blowing into the warm Great Valley through the Pacheco Pass. (Figure 1)

This strong wind generates waves five feet high which pound against the east side of the reservoir. As a result some remarkable beaches have formed in only four years time.

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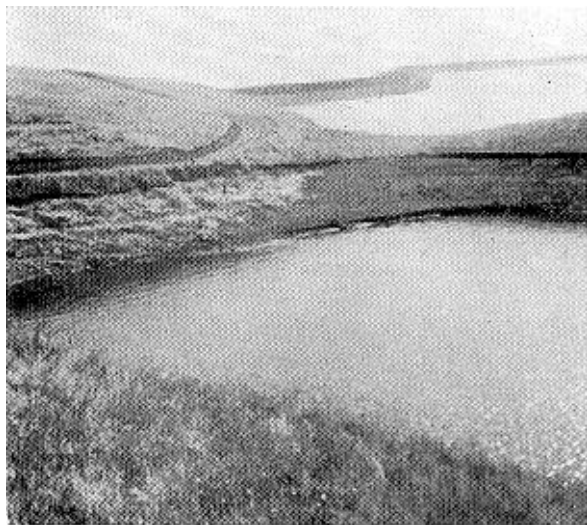


Figure 2. Showing the two beaches and whitened sandstone formation in the middle.

As shown in Figure 2, two beaches have been formed, each with a well graded series of flattened and rounded stones. These have come from the sandstone formation shown in the middle between the two beaches. The whitened appearance of the sandstone is due to a superficial deposit of a 1/16"-1/32" layer of calcite.

Both the sandstone and the various rounded and flattened pebbles and smaller stones have the same grain arrangement and hardness of about 2.5 on the Mohs scale of hardness. A total of 17 terraces were found.

Two of these, as shown in Figure 3, resulted from unusually heavy wave action since the smallest rocks are much larger than those of the other terraces. Many of them were well rounded even though so much larger than the average.

A close-up picture of the sedimentary sandstone rock is shown in Figure 4. The angle of inclination may be noted at the upper right of this picture showing one of the protruding slabs of the sandstone rock. A part of the beach area is also shown.

A close-up of one of the beaches showing soil at the bottom, about a 1'-1½' layer of pebbles and rocks, and the calcite-whitened sandstone in the background is shown in Figure 5.

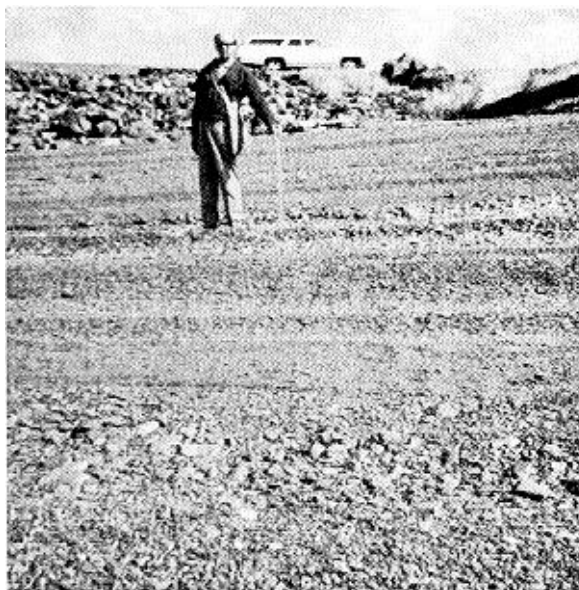


Figure 3. Showing two terraces resulting from unusually heavy wave action. A yardstick was held by Dr. Lammer.

Of course harder sandstone and shales would take considerably longer for conversion into rounded rocks, pebbles, and sand.

Tumbling experiments conducted at the Mechanical Arts Department, University of California, Santa Cruz, indicated that both building block sand and shale, of hardness of 3-3.5, are converted almost as rapidly as the San Luis reservoir sandstone.

Even quartz with a hardness of 7 is converted to sand and small rounded pebbles in about one day of tumbling.

In Figure 6 the various sizes of rocks, pebbles and sand are arranged in order of size relative to a piece of sandstone from which they came.

Conclusion

Observations such as these indicate that the terraced beaches of Lake Bonneville, Lahontan, and Mono Lake present no problem in terms of their formation from sedimentary rocks, and even quartz, in the several thousands of years since the Flood.

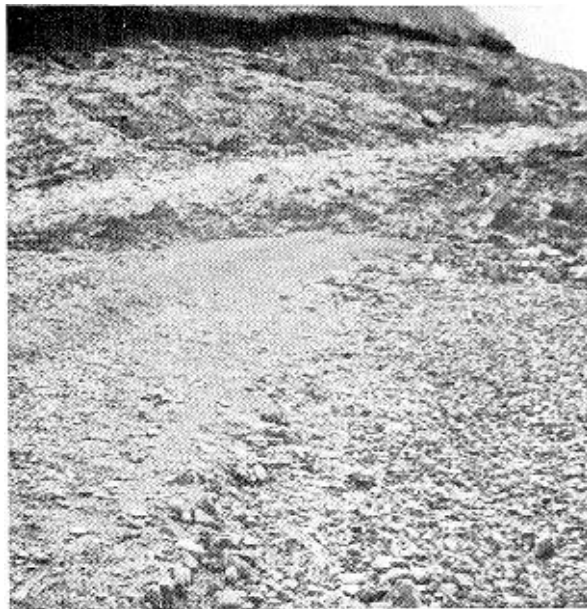


Figure 4. Close-up of sedimentary sandstone. Note the angle of inclination of the slab at the upper right or lower part of the sandstone. A portion of the beach is in the foreground.



Figure 5. Showing soil at the bottom; and about 1 to 1½ foot depth of the pebble beach. Depth is indicated by the yardstick next to Dr. Lammerts.



Figure 6. Sand and small rounded pebbles and small stones arranged according to size. A piece of the sandstone rock from which they came is at the top.

BEGINNINGS

A. G. TILNEY*

The fact that the first words of the Bible are "In the beginning" is some indication of the importance which Scripture gives to beginnings. Here are collected some observations about some of the important beginnings: the beginnings of the world, of humanity, of Israel, and of the Church. Beyond all of these there is to be a new Beginning, which is still expected.

God

While, of course, one cannot discuss God's beginning, for He has existed always or eternally, He may be thought of as the Beginning of all else. He always was—or rather IS.

He IS the Beginning and the Beginner—the Alpha, the First, as well as the Omega, the Last. Every thing was originally in Him—a Person; or, that is, a small group of Divine Persons, for His first announced Name is plural: ELOHIM, plural as surely as Cherubim, Seraphim, Shemim (Heavens) are plural.

But the verb going with this plural noun is always in the singular, to emphasize the essential UNITY of Deity. And this noun is no plural of majesty, let alone a sort of editorial "WE".

This is clearly seen in the earliest consultation: "Let US make man" (Gen. 1:26), and further: "The man is become as ONE OF US" (Gen. 3:22); and much later: "Remember now thy CREATORS in the days of thy youth." (Eccles. 12:1)

Here is the perennial human dilemma: EITHER in the beginning there was NOTHING, from which everything has somehow come (though there are people who claim to believe in the eternity of matter); OR ELSE in the beginning was THE ALL from which (or from whom) a part has come.

God alone can create, but He does not create magically—"out of nothing." Actually He EX-creates, out of Himself, out of His Own inner infinite electronic resources: Ps. 33:6, 9. God exhaled, outbreathed, radiated, the entire universe: "OUT OF HIM THE UNIVERSE" (Roms. 11:36a, and other New Testament (N.T.) passages, confirming the Psalm mentioned). Judging from the Divine creative power of Jesus Christ in the N.T., one may affirm that Creation was instantaneous; there was no evolving about it.

Consider, what took place at Cana in Galilee? The brimming water-pots left no room for any additive, and there was no transition via pinky hues from the colorless to the red.

And what took place—unrecorded, unnoticed—at the fruitful blessing of the broken loaves and

fishes? Must not batches of golden brown bread, followed by shoals of glittering silvery fish, have streamed forth from the creative fingers of Deity? For the surplus "fragments" filling the baskets were every bit as real as the substantial satisfying and tasty loaves that left only a desire for more.

Did the Risen Lord advance by visible steps through the solid walls of the Upper Room, --- or He wasn't there, then He was in the midst?

Apart from the anachronism, could a film have been taken of the creative activities of the Six Days, or merely "snaps" of the void Before and the fully formed After?

Now return to "ELOHIM" in plural form, yet with verb in the singular, and its (His?) creative power. The Father is clearly—although rather rarely—referred to in the Old Testament; so is the Son, the Eternal Son: (Ps. 2:2, 6, 7, 12; Prov. 30:4). But the angels are the sons of God; Lucifer was the first prodigal son; he abode not in the Truth.

Israel was the son of God. (Hos. 11:1; Matt. 1:15) And Solomon was especially beloved and adopted, as God's son. (2 Sam. 12:24-25)

Now a most important point is reached: MONOTHEISM.

Many people have never noticed that ONE has two meanings: (1) one and the same; (2) UNITED.

So, in the great monotheistic word in the Bible, the words "One God" mean A UNITED DEITY, thus including more than one Divine Person. (Deut. 6:4)

"God is love" is a revelation implying plurality of Divine Persons. God always was loving, out-giving, caring, before there was any world to love. The Son was the Father's delight, day by day (Prov. 8:30). Thus spake the pre-incarnate Wisdom of God, in Whose Bosom He was, and, mysteriously, ever remained. (Jn. 1:18; 3:13)

The Universe

The beginning of the universe, then, was, as we have seen, when God made it. In Genesis 1, where this work is described, there is no poetry or symbolism—only the simplest but sublimest prose, from the first verse onwards: "IN THE BEGINNING GOD CREATED THE HEAVENS —AND THE EARTH."

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Sin

There was sin in the universe before there was sin in the world or, perhaps preferably, angelic sin previous to human sin.

Did God create Satan, some ask? Yes, but not as Satan, or as adversary. He was originally Lucifer. He was seen and heard in the earthly Eden, tempting the seemingly unwarned Eve, using the "vocal organs" of a shining and intriguing serpent as his loudspeaker (as later the angel used those of Balaam's ass) in pretended commiseration with the slightly restricted bride of Adam, accusing God of tantalizing meanness, and, like Absalom and the Unjust Steward, offering better terms with the property of Another.

Genesis 3 is full of truest human psychology in two vital and modern ways: (1) God-shyness, (2) blaming others, including God Himself for the human dilemma.

Sin is alienation from God, in fancied independence of self-will, and a mistaken sense of freedom; for license is not liberty, which necessarily carries the restriction of the girdle of Truth, neither too tight, nor too lax.

Eve

That Eve was neither surprised nor alarmed at hearing the serpent talk seems indicative of the fact that the dawn of human consciousness and experience was involved.

Eve showed that she was careless in her handling of the Word of God. For she added to its strictness with her own "nor touch it"; then she subtracted from it, with her own "lest ye die."

This gave an opening for the Tempter to follow up his questioning of God's Word by contradiction, and indeed disproof. One can well picture his touching the forbidden fruit with impunity. Thus doubt and disbelief were planted in the unguarded heart of Eve, until she in turn successfully tempted her Husband-to-be to disobey the Divine command, but not this time with impunity.

Adam

The first man, whom the anthropologists are further away than ever from finding, was a son-child, offspring—of God (Lk. 3, end). He was formed, created, and made by God, in God's image—and also in God's LIKENESS (though this is nearly always omitted—but why?) From this one may boldly affirm that Adam was the greatest genius ever. God began with perfection—He started with COSMOS, not with CHAOS, neither in Nature in general, nor man and woman in particular.

The animals and birds and fish were created directly and completely. Man became an animated being, a "NEPHESEH," but not by the

implanting of a soul; rather, the total man, in-breathed by the Spirit of God, became a "living soul," and mortal if disobedient. However, the word "soul" has become narrowed to mean a part of man, something which he has, and which, in the soul-spirit unit, is IMMORTAL.

The soul, in this narrower sense, has with insight been called the synthesis of which spirit and body are, respectively, thesis and antithesis. The spirit—that masterful entity, the EGO, is freer, wider ranging, more closely related to, or more expressive of thought and will and command. The soul, on the contrary, is more closely connected with feelings, sense-impressions, experiences of the world around, and within, with habits, memories, and of fears rather than of hope.

These concepts involve the likeness of God, i.e., personality. Moreover, here is the beginning of psychology, in self-knowledge, self-awareness, the LIKENESS OF GOD. Adam sensed no kinship, relationship, attraction toward, or aversion from, the animals, which however he distinguished from one another.

How long were the first parents of humankind in the Garden? Many persons tend to lengthen the ideal and the idyllic. However, when the suggestion, "probably only for one day," is made, then very careful thought is required. Every word, and every act, of Adam—and as well of Eve—must be considered.

God did not give Adam the names of the animals; rather, Adam derived them from his inherent insight, his perception of their natures. How long did he take to name them? The creatures were, to begin with, far fewer than they were to become. Presumably he named the "kinds," which may have represented families, or even some larger category. And, of course, Noah did not take varieties into the Ark.

A further word about the animals: "cattle" are distinguished from "beasts of the field" in the text—the former, one may assume, were created ready for the service of man, requiring no taming, as fruit-trees no cultivating, and cereals no change from grasses. (Note: To assume otherwise is to admit that so-called primeval or pristine man was cleverer than modern man.)

With the fall, self-sufficiency, independence of God, disobedience—the sin that first of all entered the universe through Lucifer fallen and degraded to Satan, now entered the world through Adam, in whom all mankind sinned, became a failure, frustrated; yet God in His great mercy provided a substitute, as indicated in the wording of the PROTO-EVANGEL (Gen. 3:15).

Seemingly, Time, as it is known, began at this point.

Time

What is TIME? One might say that time, which of course includes season, opportunity, is a waiting and watching period. Time is a measurement of ENTROPY, which involves wear and tear, change and decay, and corruption and failure. (Roms. 8:20. "Subject to vanity," or "Thralldom of decay" according to Moffatt.)

Of course mere Time produces no improvement, let alone creativity. Time is not limitless, not as long as anyone wants. Time is a measure of energy running out, running down, running away. It is precisely WHAT MAN DOES NOT HAVE. There is no improvement outside the life-cycle of an organism.

"Given sufficient Time" is mere words. When a clock stops, it remains stopped. Every thing is a sort of Chronometer: a fresh-cut flower in a vase on the mantel-piece; a lighted candle; an eroding rock or mountain—and because of Time, the flower will wither, the candle burn out, and the rock wear away.

Time, as it is known, is neither creative nor constructive. Thus infinite or indefinite Time is the evolutionist's worst enemy.

Mere conditions do not produce life, which is seen to be most carefully planned and prepared, and the reverse of mere accident and chance. To declare that life will be sure to arise, whenever and wherever the right conditions concur, is just wishful thinking—or rather thoughtless wishing.

The Human Family

Adam and Eve, then, were driven from the Garden, but perhaps left some opportunity to converse with Deity at the eastward place where the Cherubim guarded the way back to the Tree of Life.

Cain and Abel were begotten and born outside the Garden. The name "Cain" means "acquisition" ("Gotten"). It may be that Eve thought that the Proto-Evangel had been fulfilled, that in her first-born she had brought forth the promised Deliverer. It might be noticed, incidentally, that the Hebrew of Gen. 4:1 could be read: "I have gotten a man, Jehovah Himself."

How old was Cain when he slew his brother? Not in his "teens," as we have been led—or allowed—to believe at Sunday School. Evidently he was quite mature as was Abel.

Abel was a "keeper of sheep," that were already tame, and acceptable for sacrifice, with the shedding of blood. Cain, on the other hand, was a "tiller of the ground."

Which people did Cain fear might kill him? And, of course, whom did he marry? If he was about 128 years of age, Cain, with 25 years for a

generation, and a possible minimum of four children to a family, could have had a posterity of some 1,500 persons to start his settlement or City; and Abel could have had equally numerous offspring to start and continue a blood feud. There is no need to imagine pre-adamites.

Culture and Technology

There was no beginning of civilization, for man, as a race, was never uncivilized. Just a few words are used in the Inspired Record to show this.

Cain must have organized his departure and eastward trek to the land of Nod; and, he must have been instructed as to both town-planning and architecture.

Two features of civilization, if not of culture, appeared early, viz. music, with both string and wind instruments (Gen. 4:21); and war, with threat of retaliation, by weapons both defensive and offensive (Gen. 4:22-24).

With the vitality and longevity reported of the people of the early patriarchal centuries, there was overlapping of several generations, with consequent oral transmission of history and of other information. Nevertheless, Death reigned; and all persons—with one exception—perished inside the first Millennial Day. The solitary exception was Enoch, who walked with God, and who may well be one of the Two Witnesses who, with Elijah, is to return before very long. (Rev. 11: 3-13).

The Present Order of the World

Since "... the world that then was . . . perished" in the Flood (2 Peter 3:6), then very probably the present order began after the Flood. Of course the extent of the changes wrought by the Flood still may not have been imagined fully.

The Flood was world-wide because Christ said that the Flood came and "took them all away." The fossiliferous strata are not a record of the coming of life in MILLIONS OF YEARS, but rather the DEPARTURE of life in about a 12-month period.

Causes of the Flood were not only physical—terrestrial or astral—but also moral, both human and angelic. (Gen. 6:2; 1 Pet. 3:19 and 20; 2 Pet. 2:4; Jude 6)

After the Noachic Flood the human race was, so to speak, given a fresh start.

The Divisions of Mankind

The purpose of the Confusion, Divinely contrived at the Tower of Babel, was to keep men apart, as well as to scatter them. There is no indication that at Babel each and every man spoke an entirely different language. One may assume that there were only three divergent

tongues at first: the Semitic and Hamitic being varieties of the basically persisting Japhetic.

Latin was not differentiated into languages mutually unintelligible until after several centuries, but at Babel God wrought the equivalent of such changes immediately. Just so, any old vine can turn ground water into wine in say six months, but at Cana the True Vine did so instantaneously.

"So the Lord scattered them abroad from thence upon the face of the earth: and they left off to build the city." (Gen. 9:27; 10:25; 11:1-9; 11:19-26)

The Jewish People

Although Abraham, Isaac, and Jacob could hardly be called Children of Israel, and although the name "Jew" was not used apparently until 2 Kings 16:6, yet the nation began with Abraham.

At Babel, the people were divided; and in Peleg's time, the earth was divided (Gen. 10:25). In Abram's time Ur was divided, as it were, and Abram called out. Then was a new beginning—a distinction of a spiritual nature. And soon there were the Children of Israel, whom God loved and adopted for their fathers' sake, especially Abraham's.

Israel, in the centrally-situated Promised Land, should have been a lighthouse for the nations of the three old-world continents. But too often Israel, without God, was as powerless as Samson shorn of his Nazarite locks. Too often godless rulers were followed by a godless people.

While God Himself was really Israel's Invisible King, in time the people demanded a human king. Saul was a disappointment, but David—

with the exception of one incident—came up to standard.

Solomon, the son of David, began well. But despite his wisdom, other things, and especially his love of many, and strange (i.e., foreign), women led to disillusionment with "things beneath the sun." Eventually there was civil war, then later godlessness, and then captivity.

The endings of the major prophets, who were also historians, indicate the exhaustion of the Divine patience, and threaten the near total—and final—destruction of the chosen people, but not quite.

In present decades, Israel has returned to the land, prophecy being fulfilled in a way which could hardly have been believed a century ago. God is going to give the nation a new heart, going to remove its veil of blindness and obduracy, going to give it a rebirth, as shown so clearly in Hosea, in Romans 9-11, and as in the case of Saul of Tarsus, who became the great apostle Paul.

The Church

God has already called out a new body from Jew and Gentile—the Christian Church. Most readers will be familiar with the facts. It must be confessed that the Church may need as much renewing, not merely reformation, as Israel.

The New Beginning

God is going to pour out His Spirit upon all flesh, even though He may have to amputate a generation to save the race, before His pending Return to earth. And at last He is going to make all things new (Rev. 21-22).

LETTERS TO THE EDITOR

Food Laws

Letters in the December, 1973 *Quarterly* relating to Biblical Food Laws might well be considered seriously by all Christians. Has God changed His mind between Lev. 11:18 and 1 Tim. 4:4-5? Are the Food Laws given in the Old Scriptures for disciplinary training?

God, as a loving Father, might have included in His laws relating to our well-being: "Do not drop a heavy stone on your bare foot"; or "Do not touch a red-hot coal or strike a sharp jagged stone with the bare hand." The penalty for disobedience is instantaneous in these latter cases; and God has obviously considered that our natural distaste for pain will quickly set us straight.

The effects are not as sudden or directly obvious in the case of the Food Laws, and God

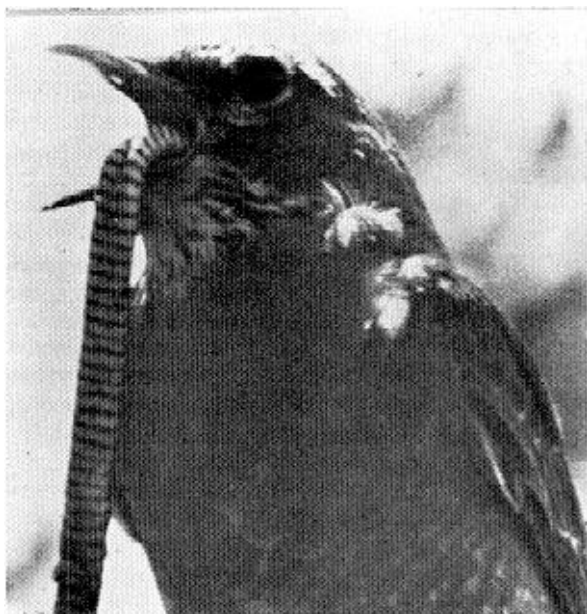
has considered it necessary to warn us in writing. Every creature created by God is good, in that God created it for a definite purpose. Scavengers have their place, as does the janitor in any well-run establishment. We even have governmental laws protecting these God-created janitors.

Because God created janitors to keep the world clean, and He considers them good, in that they effectively accomplish their job, does not mean that they are suitable as man's food.

Sincerely yours in Christ,
Alfred L. Greenlaw
12017 210th Pl. S. E.,
Issaquah,
Washington 98027

(Continued on page 132)

PICTURING THE LIGHTER SIDE OF CREATION



"Tried it—Don't like it! Just can't swallow this line about snakes going into birds."

Robin, *Turdus migratorius*, in unsuccessful attempts to swallow a 14 inch garter snake. While this bit of whimsy suggests an absurd analogy to avian "evolution" from reptiles, it also points up a basic disparity of more than casual import.

This picture was enlarged from a 16 mm. movie taken by Willis E. Keithley. Mr. Keithley, an evangelist and nature photographer, lives at 1819 N.W. 25th, Lincoln City, Oregon 97363.

THE GENESIS FLOOD AND THE GEOLOGICAL RECORD

G. L. JOHNSON*

The book of Genesis contains a detailed account of a great flood, apparently covering the entire earth. It is reasonable to ask how God caused this flood and what the geological data are to support the Genesis record. God, of course, could have created enough additional water to have covered the earth with a flood, and then annihilated the water afterwards. However, the assumption is made that God stayed within the boundaries of the natural laws he had established at creation. This paper is an examination of what the Bible author related about the flood.

Introduction

Noteworthy is the fact that the Bible author did not state the year in which the flood occurred. By use of chronologies in Genesis, one can compute a minimum date of about 4800 years ago, or about 2800 B.C.

However, the Hebrew thought patterns on chronologies were different from those of the present culture. An author could write that Jesus was the son of David, meaning that these two important men were related, with emphasis on the importance of the people, rather than the number of years or generations between them.

Because of this custom, some Bible scholars feel that the flood could have occurred 8,000 or 9,000 years ago with no injustice done to the

scriptural record.¹ Such dates would have better agreement with the rise of early civilization, the estimated time necessary to repopulate the earth, etc.

Next one should note that the Bible author wrote that the climate before the flood was different from that after the flood, as in Genesis 2:5,6:

... the Lord God had not caused it to rain upon the earth, and there was no man to till the ground; but a mist went up from the earth and watered the whole face of the ground.

There is no reference to rain or to a changed climate until Genesis 7:12, "And rain fell upon the earth forty days and forty nights."

Then after the flood, in Genesis 9:12, 13, one reads, "And God said, 'This is the sign of the covenant which I make between me and you and

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every living creature that is with you, for all future generations: I set my bow in the clouds.'” If there had been rain before the flood, there would have also been rainbows, but the language of these verses implies that the rainbow was something new. Therefore it appears that there was no rain from the time of Adam to the time of Noah.

Pre-Flood Climate Considered

What then was the climate like before the flood? One prominent idea² is that a large quantity of water was present in the atmosphere as water vapor, forming a canopy over the earth. Support for this idea may be found in Genesis 1:7, “And God made the firmament and separated the waters which were under the firmament from the waters which were above the firmament,”

Perhaps the most literal interpretation of this verse would be that the world before Noah had little surface water. Most of the water now in the oceans was then either subterranean or in a canopy above the earth. Such a canopy would have a profound influence on the climate, causing it to be uniformly warm and temperate around the earth.

The notion of a uniformly warm climate is widely accepted by scholars. Speaking of the Mesozoic Era, the age of the great reptiles, Colbert has written,

In those days the earth had a tropical or sub-tropical climate over much of its land surface, and in the widespread tropical lands there was an abundance of lush vegetation. The land was low and there were no high mountains forming physical or climatic barriers.³

With no rain to wash the dead vegetation away, it would accumulate to great depths. The effect may have been similar to peat formation in some modern day bogs or swamps.

Conceivably, when the rains of the flood came and the oceans rose, much of this vegetation would have been washed loose by wave action and deposited elsewhere, producing large thicknesses of vegetation some places, little or none in other places. Continuing wave action would then have eroded away the bare earth where it was exposed, and layers of sediment would have been deposited on top of the vegetation. In the following years this vegetation would have produced the bulk of our coal, oil, and gas deposits.

Reports of Recent Experiments

But, a critic might maintain that coal took eons of time to form, and the flood occurred less than 10,000 years ago. The necessity for long time periods for coal formation has been assumed for

many decades, without substantiation. Recent experiments have shown that the time required may actually be quite short.

In one experiment, Bureau of Mines scientists heated cow manure at 380°C (716°F), at 2,000 to 5,000 p.s.i. for 20 minutes in the presence of carbon monoxide and steam. The product was a heavy oil of excellent quality. The yield was about three barrels of oil per ton of manure. Other cellulosic materials such as wood, bark, corn husks, rice hulls, wheat straw, sewage, sludge, and garbage could also be used.⁴

Another experiment was performed by Dr. George R. Hill of the College of Mines and Mineral Industries of the University of Utah. He subjected samples of cellulose, glucose, xylose, and other woody materials to high temperatures and pressures for various lengths of time.

Dr. Hill found that when the material was heated at the rate of 5°C per minute, a dramatic temperature rise occurred in the temperature range of 220° to 260°C. This sudden rise in temperature, which amounted to 200° to 400°, indicated the onset of a highly exothermic reaction. Properties of the products were similar to those found in anthracite and low volatile bituminous coals. Hill concluded:

These observations suggest that in their formation, high rank coals, i.e., anthracite and low volatile bituminous, which contain large concentrations of multi-ring carbon hydrogen structures, were probably subjected to high temperature at some stage in their history. A possible mechanism for formation of these high rank coals could have been a short time, rapid heating event.⁵

I suggest that the heat of decomposition of the chlorophyll and protoplasm in flood buried materials, the heat generated by compression, and the increase in temperature with depth could easily have been adequate to initiate the noted exothermic reaction. The reaction would then have proceeded to completion, producing our oil and coal deposits in a matter of days or weeks after being buried by flood sediments.

Further Questions Cited

But what caused the water vapor canopy to suddenly condense and produce 40 days and nights of heavy rain? A prominent idea⁶ is that of massive volcanic activity, as might be deduced from Genesis 7:11: “. . . on that day all the fountains of the great deep burst forth. . . .”

This implies that great quantities of liquids, perhaps liquid rocks or magmas, as well as water (probably steam), had been confined under great pressure below the surface rock structure of the earth, since the time of its formation and that this

material now burst forth through great fountains or volcanoes primarily in the seas.

Condensation does not begin until the water vapor has a suitable surface on which to condense. The surface of condensation is called a nucleus of condensation. Volcanic dust would have supplied large quantities of nuclei of condensation that would have precipitated the heavy rains. Such rains and the new water from underground would supply ample water to cover a relatively flat earth.

But what happened to the water so that Noah and his family could find dry land about a year later? A possible solution for this might be found in Psalms 104:6-9:

Thou didst cover it (the earth) with the deep as with a garment; the waters stood above the mountains. At thy rebuke they fled; at the sound of thy thunder they took flight. The mountains rose, the valleys sank down to the place which thou didst appoint for them. Thou didst set a bound which they should not pass, so that they might not again cover the earth.

Under the new pressures on the earth's crust that would have been caused by the flood, mountain ranges and even continental areas would have been uplifted and ocean floors would have sunk. Such readjustments of the earth's crust would have produced dry land by concentrating the water, which had been adequate to cover a relatively flat earth, in the present oceans.

The flood and all the tidal waves, heavy rains, and uplifts would have contributed to massive amounts of erosion and redeposition. There are many places in the earth's surface where geologically older materials lie on top of younger materials. This is often "explained" by the imagined phenomenon of overthrust (where earthquake-like forces caused the earth's crust to buckle and one mass of layers to slide over another).

There are many cases, however, which do not fit the overthrust "explanation." So-called older

strata are found resting conformably on top of so-called younger strata without any evidence of overthrust.

One classic example of this is the Heart Mountain Thrust of Wyoming where the older material occupies a triangular area, approximately 30 miles wide by 60 miles long. As Hubbert and Rubey have pointed out: "Since their earliest recognition, the existence of large overthrusts has presented a mechanical paradox that has never been satisfactorily resolved."⁷

The problem of assuming that the older material was put in place by overthrusting is that pressures necessary to move a rock layer that big will crush the rock before it will move it. Also, there should be evidence of such movement in the form of broken and pulverized rock between the two layers. Such evidence is lacking in many cases.

Conclusion

Thus there are considerable geological data that may be used to support the Genesis account of a great flood. This does not mean that all or even most of the geological record can be explained by the flood. The first chapter of Genesis contains no indication of how old the earth is, or how much of the geological record was present before the flood. Very possibly though the flood would explain many otherwise unexplainable aspects of the rock record.

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FOSSILS AND UNCERTAINTY

H. H. GRIMM*

Three gross models are discussed briefly by which one might account for the generation of the fossil record. The models are concerned with the generation of the accumulated genetic complexity. They have features which exclude each other. It is contended that present observers have not and probably cannot find a way to make a choice between them based upon the fossil record alone.

This impasse is likened to that in physics known as the Heisenberg uncertainty principle.

The only known escape from this dilemma is a free-will choice between the options. The creationist point of view is one of these options, and has two very important strengths: (1) It is consistent with the historical records such as the Bible. (2) It is consistent with the second law of thermodynamics.

I. Theory Assuming Isolation of Planet Earth

The existence of fossils is offered commonly as evidence to support the present so-called theories of evolution. These theories involve the implicit assumption that all changes in genetic structures occur at or near the earth's surface as the result of various probabilistic processes.

Nuclear and electronic processes of the physical and chemical world are assigned the causal roles. In the past, from the long time fossil accumulation point of view, whatever genetic changes occurred have been implicitly assumed to result from random events.

The overall picture evolutionists have in mind usually appears to feature the earth isolated in space except for the exchange of radiation with space. This radiation has strongly stochastic features. In this situation, any significant events involving genetic change would be expected to be matters of chance.

The entire evolutionary process is pictured as the integrated effect of an extremely long and large sequence of chance events. This view can be summarized by using the diagram of Figure 1.

This diagram is used to present the main features assumed for a genetic process leading to a species of high complexity. The genetic complexity changes with time. A main feature is the supposed overall trend with time toward higher complexity. When the process is examined, with "fine grained" sampling in time, it is seen to consist of small discrete steps to either higher or lower complexity.

Darwin claimed that the process he called natural selection forced the curve to rise with time rather than fall. Each species would have been represented by a separate curve. Toward the origin of time, all curves might coalesce because of presumed common ancestry. As time moved toward the future, the proposed evolutionary branching would lead to a distinct curve for each species.

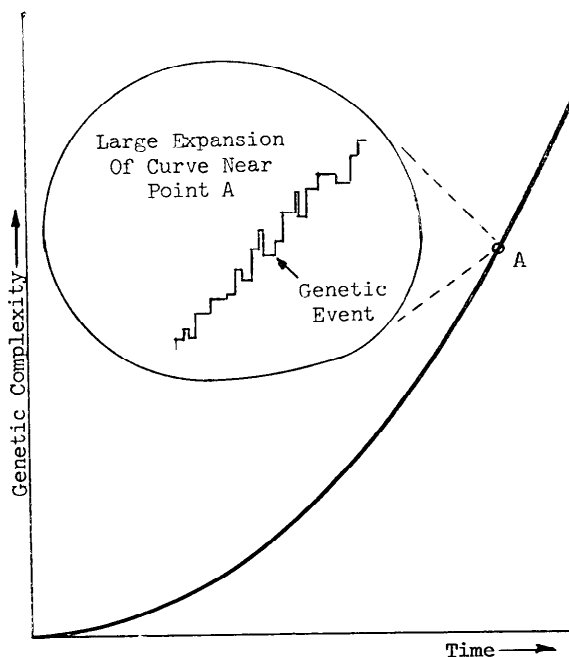


Figure 1. Evolutionary build-up of the genetic complexity of a living species.

No scales for the two axes need be attempted for the purposes of this discussion. Even if this were attempted, the data would be difficult to define and of very low accuracy.

This overall process is assumed to account for the layered fossils observed near the earth's surface. The flora and fauna which are believed to have had small genetic complexity were deposited first. Layers deposited later include flora and fauna believed to have increasing genetic complexity.

In Darwin's time the possibility of space travel was ignored, or assumed to be much less probable than the existence of isolation for planet Earth. In fact, this assumption is dominant today in many "scientific" circles.

However, today, modern man has observed the first "transports" from the earth to the nearby

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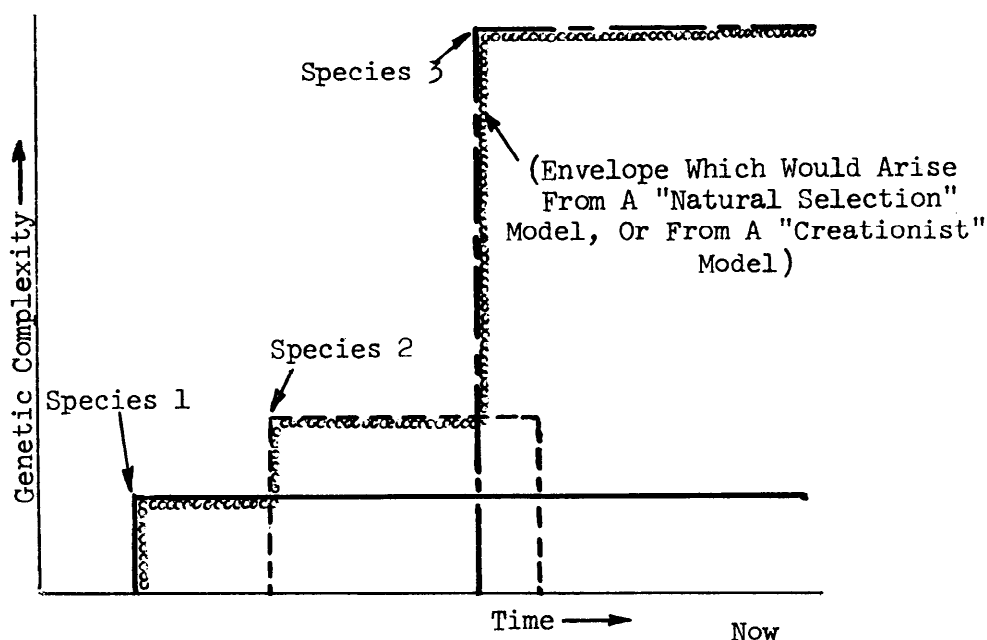


Figure 2. Transport build-up of the genetic complexity.

moon satellite and return. Instrument laden probes have been sent past planets Venus and Mars. Perhaps some material has been transported there. Some of it may be living; that is, it may contain genetic structures. What status should the assumption of planet Earth isolation in terms of living material transport have now? Clearly, the dominance of theories dependent upon the assumption of isolation of the earth, in terms of genetic material transport, need a new examination.

One model of the process by which known fossils have been deposited here on the earth has been described above, including Figure 1.

II. Possibility of Genetic Structure Transport

Consider now another process, represented in Figure 2. Consider an extreme condition, so that certain consequences might be noted. Assume all genetic complexity changes are transported to the earth from some other celestial body and none occur on the earth. Species arrive presumably on the earth and disappear from the earth abruptly. Their existence would appear to consist of either a step function, for a species which is still here, or a rectangular pulse in time for species which existed earlier and are now extinct.

Further, assume the genetic complexity and time of a new arrival can have any value specified by the external source or sources of these genetic structures. To ease the transport burden, assume this genetic material can be transported in egg and sperm or fetal forms with suitable delay of their usual development process.

A simple case is indicated in Figure 2. Species number 1 is the earliest one observed and it exists now. Species 2 appeared later and became extinct. Species 3 appeared most recently and it exists now. This would generate a three layer fossil record. The middle species in the time sequence is now extinct, the other two still exist.

By superimposing many types of insertion events in the right time sequence and genetic complexity sequence, any specified fossil record could be generated. As the granularity of the events becomes more fine grained in time and genetic complexity, it would be possible to structure the process so that the envelope of the superimposed events gives the appearance of slow change in the upward direction as indicated in Figure 1. On the coarse grained Figure 2, this is suggested by the dotted line which always has an upward trend.

There is another less detailed way to describe this type of model. Assume that planet Earth serves as the greenhouse or laboratory which some Superior Source has created and is sustaining. Space isolation permits controlled transport, insertions of new genetic structures, and their reinsertions as desired. Fossils are the debris remaining after the sequence of events in the controlled process.

Once again a familiar dilemma must be faced. Two assumptions, which appear to human beings to be mutually exclusive, can be consistent with the same set of observed facts. In some limited respects, this situation is like the "arrival" of Lobachevski's non-Euclidean geometry on the

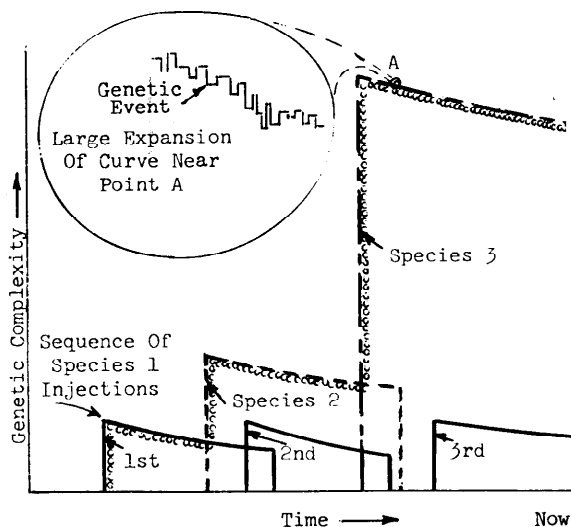


Figure 3. Transport-decay build-up of the genetic complexity.

mathematical scene, or Heisenberg's uncertainty principle on the physical one. In the case of fossils, both creationists and evolutionists, starting from opposing assumptions, can explain this particular subset of observations. Thus the title of this paper has been stated as "Fossils and Uncertainty."

III. Genetic Structure Transport and Decay

The situation can have another aspect. Assert now that most of the assumptions associated with the transport model for fossils are used. However, assume that all transport of genetic structures is followed by genetic degradation.

The step and pulse types of insertion of genetic material are now replaced by types such as those shown in Figure 3. Species are still inserted abruptly. Assume, also, that subsequent to an insertion of a species, the general trend of the genetic complexity of descendents of that particular species is downward.

This would provide a limited spectrum of genetically distinguishable entities all of which could abruptly become extinct at some point in time. This is indicated as the first injection of a sequence starting from species number 1. If this species sequence is to be sustained for a large fraction of time it could be reinserted as desired.

The insertion of the sequence starting with species number 2 is very much like that indicated in Figure 2. However, it now has an added feature. Again, over the time interval for which it exists, a short downward spectrum of genetic complexity exists which would add some variety to the flora or fauna of this sequence. The sequence starting from the insertion of species number 3 would be similar.

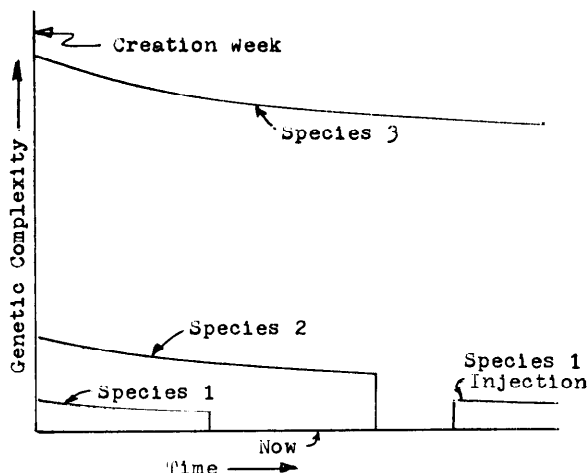


Figure 4. A Creation-week view of the generation of genetic complexity.

The figure indicates, by an expanded insert, the noisiness in the genetic domain observed as genetic mutations. Now, however, the general trend is shown as downward.

In this case, as in Figure 2, the fossil record observed now would be very simple, embellished over Figure 2 only by some spread in the genetic spectrum, principally into small regions below the species insertion level.

Assuming superposition applies, by greatly expanding the number and distribution in genetic complexity of the insertions, a very complicated fossil record could be generated. This record can show an increasing overall genetic complexity for all species, while any individual species, and subsequent descendents, is undergoing a downward trend.

IV. A Creation Week Point of View

The Bible asserts that all observable physical and genetic complexity occurred comparatively abruptly during Creation Week. This is shown in Figure 4 as the impulse in genetic complexity at the extreme left of the time scale. Again, this figure represents the time history of a small number of species.

Species number 1 has become extinct. The fossil record indicates that extinctions have occurred. The Bible asserts that such events can occur. However, limited attention is given to extinction, or details are ignored. But, according to the overall graphic historical record extinction has occurred.

Also, according to present historical events, extinction has occurred in the recent past, and is expected to occur in the future. Consider the endangered species.

Such relationships are indicated by species number 2 in Figure 4. Species number 3 represents those which will go on to the end of time, at least in the presently observable universe.

The species number 1 injection is included as a reminder that God could reestablish a presently extinct species at His option. He could use the continuing creation mode, perhaps including the transport-to-earth mode. Of course, the present creation is finished according to the Bible.

This brings the discussion to a principal contention of the author. The fossil record is the result of processes and details which must be highly uncertain to observers of fossils. Also, interpretations of the fossil record involve basic assumptions which likewise must be highly uncertain.

There is no scientific way of knowing whether continuing creation of genetic structure and/or its transport to earth has or has not occurred. Certainly, God could do this, and continue to do it, at His option.

If genetic structure transport to earth has occurred, and continues to occur, this would mask strongly the effects of genetic mutations at the earth's surface. And this would block any knowledge as to whether an isolated sequence of mutations, between genetic structure insertions, would have a trend which shows increasing, constant or decreasing genetic complexity.

In Figure 1, the assumption of inherently increasing genetic complexity caused by chance alone *seems* to deny the second law of thermodynamics. In Figure 3, order, negentropy, is always decreasing, except for any changes that might be caused by genetic transport to earth. This is consistent with the second law of thermodynamics.

Reproduction, replication, reprinting are all names for processes which postpone the loss of essential structural information in spite of material decay processes. Ultimately, and slowly, however, structural changes occur. These changes are errors in replication which could inexorably lead to less order, lower negentropy, for a given sequence of species.

In Figure 4, a creationist point of view, order started abruptly during creation week. This view point is built upon a unique contribution from the Bible, which Biblical creationists believe is the unique document inspired and sustained by the Creator. Many events related in the Bible are consistent with the second law of thermodynamics.

V. The Stored Record

Present day observers of scientific processes cannot deduce *initial* conditions from observa-

tions of the present state of the physical universe, including any processes. If they are to know what the initial conditions were, they must be revealed by the Initiator and Observer of the first events and subsequent events. This revelation could be made through any physical recording mechanism. The choice is in the hands of the first Initiator and Observer.

Many human beings believe One God is the Creator and Revealer of the creation, and that the Creator's mode of revelation was the Word as recorded in the written form known as the Bible. The Creator makes "the news," arranges for its revelation to human beings and for its recording in written form. The Creator has provided the historical base from which creationists derive their faith.

A written record is the most durable, powerful, pervasive, and efficient recording method available to human beings. God has always known this and has used it, in the format of the Bible, as one main mode which permits knowledge of the Creator.

Scientists and engineers are continually believing and using the concept of abrupt and highly complex initial states in dealing with various aspects of the physical world. To these specialists the concept is necessary. For them, an abrupt creation ought to be and often is both necessary and sufficient, with regard to the beginnings of the known universe.

The concept that order, negentropy, always decreases when a creator or controller does not intervene in a process, is also essential to present day science and engineering. In only a very limited and localized sense, human beings participate in processes which are labelled inventive or controlling.

VI. Conclusions

Present ideas and beliefs about genetic origins appear in more than one "scientifically" plausible form. Hypotheses implicit within them are often mutually exclusive and presently untestable. At the present stage of scientific development and knowledge, it is absurd to give the theories labelled as evolution so much attention to the exclusion of other theories. Looking back from the present, it was much more absurd in Darwin's time.

Observation of the present fossil record cannot now, and perhaps never can, provide a clear "scientific" choice between sets of possible processes accounting for genetic origins. Three sets of processes, that can be consistent with and cannot be dismissed by appeal to the fossil record, have been presented in this paper; namely, (1) Abrupt Creation at or near the

earth's location; or (2) the process called evolution confined to the earth's location; or (3) either process accompanied by genetic transport from other locations in the universe.

Processes and events comprising genetic origins cannot be uniquely implied by appeal to one set of known "scientific" processes. It is claimed here that this uncertainty is "scientifically" fundamental. It is resolvable, at the present time, and perhaps for all time, only by a free will choice between the alternatives.

To the author, and other Biblical creationists, a written record, the Bible, reveals the one most plausible alternative concerning genetic origins. According to this alternative, "the beginning" was a remarkably abrupt and complete Creation set of events generated by one Creator.

Also, according to the Bible, the original highly ordered state continually proceeds toward disorder, when the order is not sustained and renewed by God, the Creator and Controller. The

second law of thermodynamics is one manifestation of this process.

Proponents of the "theories" now labelled as evolution deny that genetic origin and continuation processes are continually subject to the second law of thermodynamics. Yet after much effort, these proponents have been unable to demonstrate that order emerges spontaneously from disorder. They also continue to selectively ignore and belittle graphic records left by previous generations of human beings.

Belief in Creation or evolution is a matter of faith. From this point of view they are both religious positions. All of religion and science has always started, and the author expects will always start, from certain ideas, which are not subject to "scientific" observation by human beings in their "present" time. Hence uncertainty about origins will always be potentially great to many persons who want to ignore or deny the existence and necessity of faith.

FOSSIL MAN AND THE CREATION CONCEPT

HAROLD W. CLARK*

Anthropology is based on the evolutionary philosophy. Early discoveries in Europe were used to establish a "sequence of cultures" of prehistoric man which has been extended with variable success to other parts of the earth.

Glacial deposits and cave remains correlated with the glacial "period" have been related to the "pluvials" of non-glacial regions again with variable success.

*This study contains a brief review of the discovery of Neanderthal Man, *Pithecanthropus* of South-east Asia, and *Australopithecus* of South Africa. Evidence is given to show that these "races" were not evolutionary in nature, but degenerative.*

Earliest cities of the Middle East show a surprisingly high degree of culture. It is noted that early man, as he led a nomadic life, faced adverse conditions that resulted in deterioration, particularly of the skull features, but as they settled down and established an agricultural and urban civilization, these primitive characteristics disappeared.

Discovery of modern-appearing skulls below "primitive" ones, or contemporaneous with them, disputes the claim that these crude forms were the result of "evolution."

It is suggested that anthropologists take a new look at the evidence, and align anthropology with the Genesis account of creation and the Flood. The creationist philosophy will give an interpretation that is superior to that of "evolution."

Introduction

Two philosophies have dominated science and theology since ancient times. In this study consideration will be given to the influence of these philosophies on the question of the origin of man.

About 1500 B.C. the book of Genesis was written, containing the statement that man was created in the image of God. This concept became a basic doctrine of Hebrew theology, and was incorporated into Christianity.

About 500 B.C. Greek philosophers began their studies, and some developed the philosophy of naturalism. According to this concept, human life as well as animal life had arisen through natural processes. In modern times this philosophic background became the basis for the so-called theory of organic evolution, by which evolution-

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ists assumed that man had arisen from animal ancestry.

These two views, creation and evolution, have been in conflict ever since they were first proposed, and no matter what changing interpretations may be derived from them, they deal with essentially the same idea—whether man arose by Divine fiat or through evolutionary processes.

Greek philosophy exerted a profound influence on early Christianity, and many Greek notions were carried over into the Middle Ages, and into modern times. However, primary attention will be given to the problem of fossil man in this paper.

Beginnings of Anthropology

Anthropology, or the study of ancient man, arose in Europe as the result of discoveries made along rivers, in gravel beds, and in caves in limestone strata. Gravel beds, for many years, had been attributed to the Genesis Flood, but in the early part of the 19th century Louis Agassiz, the Swiss scientist, made extensive studies of glaciers. He observed that the same phenomena seen in the Alps below the glaciers extended far out into the river valleys and onto the plains of central Europe. In 1840 he published his *Etudes sur les Glaciers*, by which he convinced scientists that a glacial period had occurred in the past.

These glacial deposits afford a much clearer and more definite record of climatic changes than have been possible anywhere else in the world, and because of this fact, anthropologists have been able to work out the sequence of prehistoric cultures from bones and artifacts found in these deposits. After the chronology was developed for Europe, attempts to apply it to other areas were fraught with difficulty. Often all that could be done was to attempt to correlate human remains with the pluvials—rain-periods—and develop a rough chronology.

In 1749 Buffon, the French naturalist, spoke of the likeness of man to the apes. In 1809, another French scientist, Lamarck, in his *Philosophie Zoologique*, declared that man was, indeed, a descendant of the apes. And so, when human bones were discovered, a natural result was the development of the science of anthropology based on the "evolution" concept.

First Discoveries of Ancient Man

The first discovery of ancient cave life was made in France and Belgium in 1833. In 1839 Boucher de Perthes explored the Somme River area and found implements of stone. In 1862 Lubbock published a report on the Somme Valley and divided prehistory into four periods, Paleolithic (Old Stone), Neolithic (New Stone), Bronze, and Iron ages.

When Perthes first found artifacts made by ancient man in the gravels of the Somme, controversy arose as to their meaning. But as more and more discoveries were made, the idea of the "evolutionary" changes of man became increasingly popular.

The first human fossil, a skull, was discovered at Gibraltar in 1848. No one had any idea of its significance, and it was laid aside until after 1856, when portions of a human skeleton were found near Dusseldorf, Germany.

These remains were found in a cave on the side of the river in the Neander Valley, and became known as Neanderthal Man. Up to the present, about 100 different fragments have been found of this same type, some of them questionable, but others fairly complete and typical. They have been found mostly in central and western Europe, but some farther east and even in Africa.

Enough remains of Neanderthals have been unearthed to establish the fact that a "race" of similar characteristics had spread over much of central and western Europe in ancient times. The remains are all much alike in skull form.

While the first reconstructions presented a slouched posture, more recent studies have shown that they walked as fully upright as does modern man. The jaws were not protruding, and the face was essentially Caucasoid.

Also the face was as flat as that of modern man, and the teeth were a variant of the Mongoloid type. The outstanding feature was the presence of prominent brow-ridges over the eyes, and the sloping forehead.

The popular conception of the slouched posture, imagined shuffling gait, etc., was due to a misconception regarding the limb bones. In the early days of anthropology the obsession with ape ancestry of man was so strong that it influenced all descriptions of such finds. Current authorities declare that Neanderthal was as intelligent as modern man, and most likely mingled with others that came into the country, and was lost by absorption rather than by conquest.

The "primitive" features have been much over-emphasized, and should not be recognized as indicating more than a subspecies. Recent studies have given this race the name of *Homo sapiens neanderthalensis*.

At first there was a temptation to associate Neanderthal Man's receding forehead with a small brain capacity, but the facts do not support that conclusion. The capacity of the skulls vary from 1220 cc to 1610 cc, which in general exceeds that of modern man in both range and average.

Where does Neanderthal Man come in the geologic sequence?

The Pleistocene was the time of the glaciers, which extended far down onto the plains of Europe. These have been classified as shown in Table 1.

Table 1. Correlation of the names given to the supposed glacial periods in Europe and in America.

European		American
Upper	Wurm	Wisconsin
Riss-Wurm		Third Interglacial
Middle	Riss	Illinoian
Mindel-Riss		Second Interglacial
Lower	Mindel	Kansan
Gunz-Mindel		First Interglacial
	Gunz	Nebraskan

Neanderthal Man has been located generally in the Third Interglacial.

Incidentally, readers should note that there is now serious question as to validity of these separate glacial "ages." Some authorities believe that the divisions are merely stages in one general glacial epoch, and that the fourth, the Wisconsin, was the only true glacial "age."

However that may be, location of Neanderthal in the Third Interglacial puts him in Europe very early. Advocates of the Flood geology recognize that the glacial phenomena were the result of changing climatic conditions that came as the result of the Flood; it is not necessary to assume hundreds of thousands of years for the glacial period.

As other discoveries were made in the latter part of the 19th century, the hope of interpreting Neanderthal as an "evolutionary" ancestor of present men became less and less evident. And so the search turned to other parts of the world.

Another Ancient Man Discovered

About 1890 Eugene Dubois, lecturer on anatomy at the University of Rotterdam resigned his position and joined the Royal Dutch East Indian Army, in the hope that he might have the opportunity of doing excavation in Southeast Asia. In 1894 he announced the discovery of a skull in a terrace of the Solo River near Trinil, Java.

The skull was somewhat smaller than Neanderthal, but showed the same characteristics, possibly a bit more "primitive" in appearance. Dubois named it *Pithecanthropus erectus*, the erect ape-man. An avalanche of discussion followed this find, and anthropologists were hopeful that the problem of man's origin was soon to be solved.

But as time passed and more specimens of the pithecanthropoid type were found, the evidence became more and more perplexing. Some specimens were more primitive in appearance, others

more modern, and no sequential arrangement could be determined.

The controversy raged for years, but Dubois would not allow anyone to view the original skull. Finally, when he did allow experts to see the skull, 30 years after discovery, they were disappointed, for it did not reveal evidence of "evolution" to the degree expected. It was not so small nor so ape-like as they had been led to believe.

More than that, Dubois revealed the fact that his first discovery, that of the Wadjak skull, which he had not yet reported, was so human in appearance that he had kept it in seclusion, apparently because he could not harmonize it with his concepts of what "primitive" man should look like.

Over-all results of explorations in Southeast Asia have been so confusing that anthropologists have about given up hope of solving the problem of the origin of man by specimens found in that region. And so the search turned to another region, south and east Africa.

Ancient African Man Found

In 1924 Raymond Dart of the University of Johannesburg announced the finding of a skull in a quarry north of Kimberley. The features were described as ape-like, with a very slanting forehead and low cranial vault. Although the face looked like that of a chimpanzee, other features resembled those of modern man. This was named *Australopithecus africanus*, the African southern-ape.

This discovery aroused much interest in the possibility of man's origin in South Africa, and in the next few years many more fragments were unearthed. These were described as small "hominids," man-like creatures, the size of pigmies, and much controversy took place regarding them.

While some of the facial features were ape-like, the dentition was human, and the limb-bones were generally human in shape. One authority called them relatives of the gorilla and chimpanzee, while other scientists regarded them as human. At the present day there is still much disagreement as how to interpret them.

One writer describes the bones as being as fragmentary as the refuse "from a lamb stew" and consisting largely of teeth, which are most easily preserved. Several hundred fragments of bones and teeth have been found, but all in all the evidence is confusing.

At Broken Hill, Rhodesia, in a mine of lead and zinc ore, a pocket full of animal bones was found, mostly modern in appearance. In this location was a human cranium, with a confusing mixture of Neanderthal, Egyptian, and Negroid

features. Various other fragments were scattered, but not positively identifiable as to origin.

Dubois thought that the skull fragments were like modern Australian aborigines skulls. Still others believe that there is close resemblance between the African, Neanderthal, and Australian skulls. So the idea of man's origin in Africa is very much an open question. The evidence is so meager that not much can be made of it.

Doubtless the discovery that has attracted the most attention in recent years was that made by Mr. and Mrs. Louis S. B. Leakey in 1959. For years they had been looking for evidence of prehistoric man in East Africa. They had done excavations in Olduvai Gorge in Tanzania. One day Mrs. Leakey saw some teeth protruding from the ground, and excavation unearthed about 400 fragments which, upon being assembled, formed a peculiarly shaped skull. The next year other bones were found nearby, which were assumed to belong to the same creature.

This specimen was named *Zinjanthropus africanus*, East African man. The face was high, and the forehead sloped sharply from above the eyes. Heavy brow-ridges were present. A peculiar crest stood out above the skull. The face was ape-like in appearance, but with many human features. The teeth were like those of *Australopithecus*. No conclusion could be drawn from the leg bones. The creature had a peculiar mingling of ape and human features.

Problems of Specimen Dating

The scientific world was startled when potassium-argon tests gave a date of 1,750,000 years for the material in which the bones were found. This at once raised questions as to the antiquity of man, for nothing of such extreme antiquity had ever been known. However, it is worth noting that carbon-14 tests on mammal bones nearby gave a date of about 10,000 years.

This problem of dating has given much perplexity to the anthropologists. Potassium-argon tests in one layer of basalt in the region showed 1,300,000 years and another 4,000,000. At Lake Rudolph, Ethiopia, 40 teeth and two lower jaws of *Australopithecus* were found in rock that dated 4,000,000 years.

A number of other finds have been announced from East Africa, but they give no particular information as to the problem of man's origin. The French anthropologist M. Boule, in his *Fossil Man* (New York, Dryden Press, 1957), says that the majority of specimens found in East Africa belong to *Homo sapiens*. They do not differ much, he asserts, from the present inhabitants. Their culture was like that of ancient European men.

The greatest reason why some authorities classed the African specimens as ape-like was their small size. Yet intelligence does not necessarily correlate with brain-size. *Australopithecus* was a small creature, about four feet high, and weighing only about 70-80 pounds, somewhat like the Bushmen or Pigmies.

Wilfrid E. Le Gros Clark, one of the greatest anatomists, states in his article on "Man" in the *Encyclopædia Britannica*, 1966 edition, that in the *Australopithecines* the skull features were such as were never seen in apes. Not one of the features of the pelvis is like that of the apes, but human in appearance, and adapted to erect posture. Even *Zinjanthropus*, Clark adds, in spite of its so-called "primitive" features, is distinctly "hominid," that is, human-like.

Although the South African specimens were different in many features of skull, teeth, and limbs, they were far outside the range of modern apes. The most outstanding characteristic is that of the teeth. The front premolar is hominid, the molars are within the hominid range, and there is no diastema, or gap between the teeth to allow the canines of one jaw to project between the teeth of the other. The teeth are distinctly human.

Some readers may question the validity of these statements, because they have read statements that seem to contradict what has just been said. But it should be noted that the most recent works on anthropology give quite a different picture than earlier works; and it is very interesting to note that the latest material is strongly against the "evolutionary" interpretation.

The general results of many studies on the South African fragments has led authorities to conclude that the fragments were nothing but "genetically different" groups, and not real races or transition forms between man and apes. Serious doubt has been thrown on the validity of the supposed origin of man in Africa.

Discussion

With all the perplexing problems associated with the materials found in Europe, Asia, and Africa regarding the meaning of the fossil remains of man, what can be done to bring a satisfactory solution to the situation? The answer seems to lie primarily in Europe and the Near East. Recent discoveries and their significance must now be noted.

Several skeletal remains have been found in Europe that indicate that a re-appraisal of anthropological theory is necessary. Among these are skulls from Steinheim, Germany; Saccapastores, Italy; and Fontchevade, France. At Steinheim a skull was found in a gravel pit with many animal bones. The deposit was classified as

Mindel-Riss interglacial, which is below the level of Neanderthal Man.

However, it was typically Caucasoid, with a brain capacity of 1000 cc, and was essentially modern in appearance. Two skulls found at Sacapastores appeared primitive in some respects, but the brow ridges were not large and the general shape and morphology of the brain and of the attachments of the neck muscle resembled that of modern man.

The skull found at Fontchevade is the most significant of all the so-called pre-Neanderthal remains. In a cave several feet of typical Neanderthal remains—bones, artifacts—were found, until the excavators reached a hard limy floor, which appeared to be the bottom of the cave. However, researchers broke through the hard floor, and at a depth of eight feet below it, they found fragments of a human skull. When assembled, it showed all the characteristics of modern skulls.

Animal bones found in this lower deposit included those of many mammals and other organisms characteristic of the climate that exists in Europe today. But there were also bones of rhinoceros and wild dog of the type that is now found only in southern Asia.

Results of the fluorine test showed that the bones were definitely older than the typical Neanderthal bones found above them. The very fact that these lower bones were of animals quite modern in appearance makes it impossible to believe that long periods of time were involved in the formation of the deposits.

Now to consider western Asia, in the regions of Palestine and Asia Minor. The latter includes what is known as the Anatolian Plateau, or Anatolia. Here many evidences of Paleolithic culture have been found, mostly circles of stones which may have marked the sites of shelters of some kind. Very few bones have been found, except in a few caves, and their meaning is not clear.

Skulls, which without doubt are of the Neanderthal age or earlier, show a slight tendency toward the variation characteristics of that race. It has been noted that there were several migration routes from this region into Europe, one on the south shores of the Mediterranean and two or three on the north. There is also evidence of migrations into Africa and southward.

The first permanent settlements of which there is a clear record were in Palestine, Anatolia, and Mesopotamia. Jericho, 825 feet below sea level, is reported as the first city ever built. This conclusion is doubtless derived from the fact that the artifacts are Neolithic; yet the conclusion may not be as sure as is generally believed.

In Anatolia, north of the Taurus Mountains, was the city of Catal Huyuk, another Neolithic

city. Both these had brick houses with plastered walls and evidently thatched roofs. Many kinds of Neolithic stone implements have been found in these ruins, with evidence of a number of industries such as agriculture, cattle raising, weaving, etc. Many of the houses were beautifully decorated with mosaics and sculptures and painting.

In Mesopotamia remnants of such cities as Ur, Abram's city, and several other similar cities were found. These had Neolithic implements at the bottom, which were followed by layers with gold and silver and bronze implements. Chariots were beautifully decorated with gold and silver and lapis lazuli.

Apparently the plateau was habitable before the valleys, and most likely Jericho, being in an arid region close to the Dead Sea, became habitable very early. It is interesting to note that when Jericho was flourishing, the Dead Sea was only about a mile away.

Conclusions

Although only a sketchy account has been possible, it would seem that enough data are now on hand from which to draw a reasonable picture of the relation of so-called "primitive" men to city builders of the Near and Middle East.

Apparently as men multiplied after the Flood, they migrated rapidly, doubtless exploring and following a nomadic life until they found suitable places of abode. The fact that the pre-Neanderthal characteristics show up in the very region where the first cities were built indicates that the early nomads underwent a certain amount of deterioration, doubtless due to unfavorable environmental conditions and probably poor food.

As these people migrated westward and southward these characteristic were accentuated during in-breeding, resulting in Neanderthal Man as he was first discovered in Europe. And as the migration continued southward, those who eventually reached South Africa showed the most degeneracy of all. Very possibly the same development took place among those who migrated eastward into Southeast Asia, Australia, and the islands of the Pacific.

When men settled in cities and villages and began agricultural pursuits, their conditions improved, and the later cultures showed little or no sign of the deterioration manifested by the earliest inhabitants of the region.

Wave after wave of invasions from the east have reached Europe. Neolithic man moved into the areas first inhabited by Paleolithic man on both sides of the Mediterranean. There are clear remnants of this culture in the Alps and in central and northern Europe.

Most outstanding, perhaps, were the Cro-Magnons who followed the Neanderthals. They were completely modern in appearance. There is no evidence of the kind of dwellings they built. However, in the Alps, remnants of the dwellings of the Swiss lake people are found, which are obviously well advanced Neolithic communities.

The question will be asked: If deterioration or degeneracy could produce men who looked like apes, does that not indicate that they were reverting back to their ape ancestry?

In answer to this question it is important to note the statements of some of the leading authorities to the effect that even the crudest of the fossil men, the Australopithecines, show features never found among apes.

Brow ridges are not necessarily ape features, neither are sloping foreheads or projecting jaws. These features are found in variable degrees in modern man, but anthropologists do not claim that such features of modern man represent ape ancestry.

The author recently saw a hospital patient whose deficient development made him a perfect picture of the most extreme Neanderthal ever found. All of these "degenerate" features may have been produced by faulty fetal development. Furthermore, the nature of the teeth of fossil man shows that they were human and not apes or descendants of apes.

Anthropologists have been guided, since the beginning of their science over a hundred years ago, by the "evolutionary" philosophy. Every interpretation as to origin, movements, anatomy, cultures, etc., has been formulated from that point of view.

The Creation-Flood interpretation has not received the attention that it deserves from most competent anthropologists. Is it not about time that anthropologists took a new look at the evidence, and began to interpret the evidence in a new light, under the frame of reference of a different philosophy—the creation philosophy?

THE FLOOD AND THE ARK

J. E. SCHMICH*

There are many questions which could be asked about the Flood, the greatest crisis which the human race has ever faced; and about the Ark, the means whereby some were saved. In this article the author attempts to answer some of these questions, and to suggest possible ways of investigating others.

Because of archeological excavations, numerous ancient civilizations have been identified. Artifacts of human handicrafts, bricks stamped with cuneiform inscriptions, pieces of pottery, ruins of cities have been used to develop stories of these people. Nothing of this sort can be found of the work of antediluvians. All has been destroyed.

Only the story in the Bible remains, which includes two very important facts. First, the moral confusion of that time is reported. Second, the account of the ark contains evidence of high level productive ability of that race of people. And aspects of the present natural environment can be used to corroborate the Biblical account of the flood of Genesis.

The Flood and Available Water

For someone to accept the fact that there was a flood, availability of sufficient water to cover this planet must seem creditable. A modern evolutionist, Heinz Haber, has made this relevant comment:

Were it not for a peculiarity in the earth's

evolution, its entire surface would consist of water extending from pole to pole without a speck of land. If the earth were a smooth sphere the quantity of water in the oceans would be sufficient to envelop the entire globe with a depth of 7,500 feet, in which case this planet would have a truly liquid surface.¹

Today, however, the oceans cover only 71 percent of the earth's area. If there was a flood, then a transition affecting the distribution of water must have taken place some time in the past. Haber has this to say about the present condition of our planet:

The altitude level of about a thousand feet above sea level is found in the wide plains of all continents and it is interrupted only to a small degree by hills and even less frequently by high mountains. The underwater level is represented by the ocean floor which extends over millions of square miles at an average depth of about three miles. It is mostly flat, but it is interspersed at many places by submarine mountain ranges and deep sea trenches.

This surprising partition into two altitude levels has been known for a number of

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decades, but it was always regarded as incidental. However, justice would not be done to the subject of this book if the circumstances were left without an explanation.

Without this partition there would be no dry land because the earth would be covered from pole to pole by one huge world wide ocean.²

These two levels must represent the limits set to drain the flood waters to provide dry land. For the water in the ocean basins is the water that once covered the entire surface of the earth.

Thou didst fix a boundary which they might not pass. They shall not return to cover the earth.³

I believe evidence now exists that there was sufficient water to produce the flood as described in Genesis.

Characteristics of Sea-Going Ark

The other question is, Was there an Ark or is it just a legend? That there was an Ark is quite evident, for without that boat, there could be no human or land animal life on earth today.

Characteristics of the design of the Ark, as given below, are based upon information given in the Bible, and upon information on the design and construction of sea-going ships from modern types back to sea-going ships of ancient people. Ship construction consists of three parts, namely: a keel, a rib-structure, and a caulked planked hull.

To those skeptics who doubt the necessity for building such a large vessel, and to afford some understanding of the magnitude of problems involved in building such a large vessel, the following suggestions are made:

1. Take a voyage across the North Atlantic on a slow freighter during a typical stormy period.
2. Visit a shipyard and observe construction of a large ocean vessel.

According to Bible authorities, the Ark was a huge boat, equivalent in size to some of the largest ocean liners. In *The Genesis Flood* Whitcomb and Morris have discussed the size of the Ark.⁴

The Ark should not be called a ship, but instead the term "scow" could be applied. A more elegant name would be a house-boat. The Ark cannot be called a ship because of the following reasons:

1. It had neither rudder nor propulsion.
2. It had no captain or crew. Noah and his family were actually passengers.
3. It had no home port nor port of call, yet it floated on a world-wide ocean; the only boat ever to do this. The prime characteristic of the Ark was that it did float.

Based on the above statements, a paradox can

be denoted, for any vessel without rudder control or propulsion could not float in safety for a full year on a world ocean. In fact its life would have been very short.

Here is a most definite point for the contention that the Ark was under Divine control. The voyage of the Ark illustrates the helplessness of the human race and its complete dependence upon the Creator.

The world-wide ocean that existed during the flood had a surface many times rougher than might be experienced today. The ocean water surface is divided by continents. Probably the world-wide ocean of the Genesis flood was swept by wind storms that would make modern tornadoes seem like a zephyr. Consideration also should be given to the effect of forces that caused the deformation of the earth's crust, especially the sudden formation of the ocean basins. Possibly even other conditions disturbed the ocean surface.

It seems safe to assume that the Ark was taken out of the main stream of forces that disturbed the surface of the world ocean. To preserve the lives of the human passengers as well as the animals, Divine direction must have placed the Ark in a position of comparative calm.

Features of the Ark

The Bible contains very little detailed information about the Ark except some overall dimensions. Only a few figures are given regarding size. A few details are given about the interior, the number of decks, and the fact that there was an apartment on the upper deck for the family of Noah.

Nothing is given about the construction of the hull of the Ark except that it was to be made of gopher wood and was to be covered with pitch inside and outside.⁵

The Hebrew word gopher is from the ancient Sumarian giparn, a tree not yet definitely identified. Commentators have suggested that gopher wood may have been lumber from a coniferous tree. To get wood of the required length and cross-section for a huge structure like the Ark, it would be necessary to use lumber from trees of the ante-diluvian period available during the time the Ark was under construction.

Contour of the surface of the Ark hull is not given in the Bible. The hull surface must have been designed for extreme strength. Therefore, it would be curved, stubby and smooth. The ancients of early historical times were not slow to realize that a ship designed to carry much freight had to have a stubby almost round bow and stern.

The hull of the Ark must have had a very heavy and deep keel to provide for stabilization and its hull must have been made extra thick below the

water line to provide protection from the heavy debris that probably floated on the ocean surface, debris that would have severely damaged the bottom of a modern ocean liner.

Assuming the Ark had characteristics similar to post-diluvian ships, a complete picture of this great project of the ante-diluvian period would entail a multitude of construction and administration problems usually associated only with modern technological know-how. The basic design represented by the keel, rib and hull construction is similar to the design of sea-going ships of the centuries of the post-diluvian period. The method of assembly of such ships varied with different peoples and different times.

Some Other Ark Details

In some respects it seems that the ante-diluvians must have done as did the ancient Greeks.

Probably Noah first built a cradle and then assembled the Ark inside such a structure, because the Bible writer reports that the waters swelled and lifted up the Ark so that it rose high above the earth and floated on the waters.⁶

For a group of passengers and animals to survive on a world-wide ocean for over a year, certain provisions in the design of the Ark were necessary. These are: (1) means for storage of food and water, and supply of fresh air below decks; (2) water could have been drained off the upper deck surface of the Ark into huge vats; (3) food storage must have been provided to keep the food dry and clean; (4) fresh air below deck could have been supplied by a wind-deflecting system, and (5) sanitation problems below decks, though serious, must have been solved.

The place where the Ark grounded must have been a place of fertile land, fresh water and an environment suitable for farming. Bible expositors agree that the mountainous land of Armenia is the site of that beach-head, although its location is not known exactly.

When Noah disembarked, his most serious problem was the lack of usable timber, so necessary to build houses for the protection of his family as well as his sons' families. Very possibly wood of the Ark was a suitable source of precious timber. Noah, his sons, and processes of decay could have demolished the scow beyond recognition.

This may have been the story of a scow and eight people. It covers one of the most critical periods of time in the history of human beings as it extends from Adam to Christ.

That this line of chronology was not broken, even during the most catastrophic period of earth's history, is quite evident to those who understand the dreadful significance of the possibility of the Ark sinking. Such a failure was not possible, for with the most helpless of all vessels ever called upon to carry life, even a scow, that vessel became the safest carrier when under Divine control.

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- ¹Haber, Heinz. 19XX. Our blue planet. Charles Scribners Sons, New York, pp. 24 and 25.
- ²*Ibid.*, p. 26.
- ³Psalms 104.6-9. (All Biblical references have been taken from the Revised Standard Version.)
- ⁴Whitcomb, John C. and Henry M. Morris. 1960. The Genesis flood. The Presbyterian and Reformed Publishing Co., Philadelphia, Pa., pp. 10 and 11.
- ⁵Genesis 6:14.
- ⁶Genesis 7:17 and 18.

PANORAMA OF SCIENCE

More Precambrian Pollen

Additional evidence has appeared that fossil pollen may be found where it would never have been expected according to uniformitarian theory. The account referred to here was written on behalf of the Asociacion Venezolana de Geologia, Minera y Petroleo, Apartado 4400, Chacao, Estado Miranda, Venezuela, and is vouched for by several members.¹

Late in 1963, G. C. K. Dunsterville made an expedition to collect orchids around Cerro Vanamo, which is located at the westernmost point on the frontier between Venezuela and British Guiana on the mountain known as Wanamu Head. He noted some shale-like beds at the base of a towering cliff of Roraima sandstone and collected samples for their possible paleontological interest.

G. Fournier, palynologist of the Mene Grande Oil Company, processed the samples and recovered well preserved pollen and spores. Subsequently L. Nijssen and J. A. Sulek, palynologists of Campana Shell de Venezuela and Creole Petroleum Corporation, respectively, processed other pieces and recovered identical plant microfossils.

British Guiana Geological Survey specialists had done radiometric testing of the Roraima formation; and, although the exact age determined in years was not stated, the formation was assigned a Precambrian, Proterozoic classification. Hence two horns of a dilemma became evident: 1) Did flowering plants live way back in the Precambrian, a billion years ago? or 2) Is radiometric age dating just a delusion?

Such anomalous results perplexed the survey scientists, and an expedition of qualified geolo-

gists was organized to verify the facts in the case. During April, 1964 this group confirmed the salient facts, as reported by Dunsterville. The shale-like beds, being less competent, had eroded away below the massive Roraima sandstone, leaving an undercut extending 10-12 feet inward at the base of the cliff. New samples of unweathered rock were collected from the face of the undercut. Utmost care was taken to avoid any possibility of contamination. Nevertheless, microfossils of the same type as before were recovered.

Dr. P. H. A. Martin Kaye, director of the British Guiana Geological Survey, collected samples of beds described as "hornfelized sediments" from a seemingly correlative level near Paruima on the Kamarang River, some 25 miles east of the original locality. As before, independent investigations were made on this material, and the same flora recorded.

Although the hornfels was a somewhat metamorphosed rock, still the spores were covered with a very durable exine. The rock was composed of mainly muscovite with a little quartz.

J. Steyermark was able to compare the recent pollen of the area with the assemblage in the rocks, and stated that they are distinct; therefore, the specimens were apparently extinct species or perhaps genera. Compositae pollen were extracted. Thus at least some of the pollen were from angiosperms.

As with other anomalous findings, there are always some who exclaim, "Contaminations"; but others, who examined the productive locations, declare that there is no possibility of contamination. For before erosion the pollen and spores were embedded deeply within the formation, undisturbed since the sediments were laid down.

Apparently, then, identifications of fossil pollen in Grand Canyon strata, reported previously in the *Quarterly*², were not out of line after all. The evidence from Venezuela and British Guiana adds further credibility to the account of Moses that all the original kinds of biological life on earth began during Creation Week.

—Reviewed by C. L. Burdick

Evolution No Help to the Prospector

(The question was asked, whether evolutionary theory is of any help to a geologist in his practical work of finding deposits of minerals. These comments are by a geologist whose specialty is locating minerals of commercial value.)

In the early days of geology many scientists assumed that a knowledge of evolutionary geology was necessary to locate coal, oil, or even valuable minerals.

Actually the Mississippian and Pennsylvanian formations of the upper Paleozoic Era in Ameri-

ca were known on the Continent of Europe and elsewhere as Carboniferous. Therefore, if one wished to prospect for coal and oil he should confine his efforts to prospecting formations containing upper Paleozoic fossils.

All of this can be used to bring out the error of early geologists when they used the "onion coat" theory to project all over the world the special associations of fossil fuel with fossils which had been found in England and Germany.

Perhaps in circumscribed locations there might be an association of a certain fossil with a certain kind of fossil fuel. For example, in Texas certain species of conodonts are found in formations containing oil. So in that circumscribed area geologists would be correct to prospect for fossil conodonts with the hope of locating oil—but this guide might be worthless in prospecting for oil in Alberta, Canada.

Much oil in Texas is found in the Permian Basin. If the evolutionary guide were worth anything, one should search for oil in Canada in the Permian. Actually, much of the Canadian oil is found in the Tertiary. Oil is found in almost any sedimentary formation in various parts of the world. So what has been the value of evolutionary geology in searching for fossil fuels?

Prospecting for metals involves significantly different conditions.

Most commercial minerals are found in rocks other than sedimentary. There are exceptions, such as the lead and zinc mines of Missouri located in Mississippian limestone; but geologists suspect that, at greater depth, there may be ore-bearing intrusive rocks, from which most minerals are mined.

Geologists think intrusive rocks were formed when magma was pushed toward the surface of the earth from the lower crust or upper mantle, but never quite reached the surface. Thus, the magma cooled under a mile or so of thermal blanket, cooling was very slow, and large crystals were formed during consequent crystallization. Supposedly molten magmas filled fractures in rocks, resulting in formation of dikes and veins, which contain ore minerals.

One might ask why volcanic rocks do not, as a rule, contain commercial ores. They do, of course; but like the intrusive magmas only very dilute quantities are present. Then one may logically inquire why the deep-seated intrusive rocks or "plutons" are the ore-bearers, rather than the volcanic rocks.

A preferred explanation is that volcanic lava, being on the surface, cooled quite rapidly and the ore content was retained in dilute concentrations. Thus the ore content did not become concentrated enough as to be of commercial value.

In the case of the deep-seated plutons or intrusive magmas, presumably while such material was cooling, hot ground water circulated through the pluton, dissolving the ore-bearing minerals until it becomes saturated. Possibly this is the concentration process which transformed the "dilute" minerals into concentrated, commercial concentrations.

Geologists interpret that, as these ore-bearing solutions ascended toward the surface, following fractures in the pluton, cooler rock was contacted. When cooled to a temperature at which the minerals would no longer be held in solution; the minerals were precipitated as commercial ores.

Different ores have different precipitating temperatures. For instance, at great depths (Hypothermal Zone), the high-temperature minerals such as chromium and tungsten may crystallize. If ore-bearing solutions continued to rise, at a lower temperature, copper might become precipitated in the Mesothermal Zone. Still nearer to the surface, in the Epithermal Zone, cooler temperatures may cause gold and silver to precipitate, as well as mercury.

I fail to see that evolutionary geology is of any value in prospecting for commercial minerals. When I was taking economic geology the head economic geologist was uncertain whether the Homestake gold was precipitated in the Precambrian or in the Tertiary.

Incidentally, since ore-bearing rocks are not as a rule sedimentary, it is difficult to correlate the ore deposits with chronology based on fossils (except that, if ore-bearing deposits intrude fossil-bearing sediments, it would be self-evident that the ore was deposited later than the fossil-bearing rocks).

However, ore deposits are usually correlated with tectonic upheavals, i.e., orogeny. Presumably, at such times crustal movements lead to fracturing and faulting, and thus channels might be provided through which hot ore-bearing solutions could have moved.

According to "historical" geologists there have not been many such periods. On the whole the Paleozoic era, though supposed by of an extent of hundreds of millions of years, is not considered to have been punctuated with very many crustal movements.

One of the earliest of the orogeny events was what geologists call the Mazatzall Revolution, in the Precambrian. Creationists could equate this with the Creation period, when the earth was covered with water.

Supposedly, during the Mazatzall Revolution, mountains or continents arose from the universal ocean and isostatic balance was attained as the ocean basins sank correspondingly. Such processes would inevitably have caused fracturing and faulting, thus opening channels for the emis-

sion of volcanic products, and also for aqueous solutions carrying ore minerals.

According to "historical" geologists, the next tectonic event was the Laramide Revolution at the time of the Cretaceous Period, when much orogeny and mountain-building is imagined. For many reasons, which cannot be enumerated because of lack of space, apparently the Laramide crustal motion coincided with what might be called the Flood Period. At that time the crust of the earth was greatly modified, and isostatic balance would have been disturbed by erosion and redeposition of sediments. Probably resulting stresses were relieved by faults and fractures, which were subsequently filled with dikes and deposits of ore.

The third most often mentioned period of orogeny was the early Tertiary. This could easily have been but a recrudescence of the after-effects of the Flood, which subsided very slowly.

In some respects orthodox "historical" geology fits in rather well with Flood geology, the most striking difference being in age-dating. If orthodox geologists were not so prejudiced against the Biblical Flood, a number of the problems in "historical" geology could be resolved.

—Submitted by C. L. Burdick

Insect Family Tree May Become a Forest

A fascinating review³ entitled, "Throw Away Your Zoology Textbooks," of an article⁴ by Dr. Sidnie M. Manton of Queen Mary College, London might be of particular interest to Creationists.

In a thorough-going study, Manton has argued that the Arthropoda can no longer be viewed as "nature's most supreme demonstration of adaptive radiation about a common theme." Neither can the Arthropoda be considered any longer as having "evolved" from the relatively "primitive" polychaete worms (such as the lug worms used in fishermen's bait), simply because they all have armored plate and tough chitinous jaws. The Arthropoda, of course, include the trilobites, crustaceans (such as crabs, lobsters, and barnacles), spiders, scorpions, and insects.

Sounding very much like a creationist, Dr. Manton argued that "arthropodism" has arisen at least three times, resulting in three totally different phyla, the uniramia (myriopods, onychophora, and five distinct groups of hexapods or insects), the crustaceae, and the chelicerata (including the spiders). She based her argument mainly on comparative morphology, though using also embryological data.

One weakness in the traditional view is the lack of evidence for intermediate ancestral types either as fossils or living forms. By no conceivable route could anyone of the types of mandibles (jaws) found in crabs, insects, or king-crabs have "evolved" from either of the other two.

Insects have also traditionally been considered as fairly closely linked. But Manton argued that they are not a single group, but at least five groups; namely, the winged insects, and four wingless groups, such as springtails and silver fish. She proposed that all these groups arose independently from some soft-bodied ancestor resembling onychopora. The arachnids or spiders, according to Dr. Manton, are the terrestrial representatives of the aquatic chelicerata which includes the king-crab (*Limulus*).

Certainly I would agree with Manton as regards her thesis that insects are not a single group. By the same type of argument used, one can show clearly that Hymenoptera (ants, bees, wasps, sawflies, and hornets), Lepidoptera (butterflies and moths), Diptera (flies), Coleoptera (beetles and weevils), and Homoptera (aphids, scale insects, white flies, treehoppers, leafhoppers, spittle bugs, and harvest flies) could never have been derived from a common ancestral type.

However, my main objection to Dr. Manton's thesis is the apparent consideration that all the *winged insects* are related by descent from a common ancestor.

Having studied entomology for my bachelor's degree before going into the field of genetics, it was a source of constant wonder to me how such a remarkable array of creatures as are found in the order Coleoptera could ever be considered as having arisen from a common ancestor. One of my professors, Dr. E. C. Van Dyke, a world authority on this group, often was equally puzzled. Surely the lovely little ladybird beetles have very little in common with the clumsy and rather homely-looking ground beetles, such as *Eleodes dentipes*.

It is refreshing to find one student of zoology questioning the idea that such distinct groups of animals as the trilobites, spiders, crabs, lobsters, millipedes, and insects could come from a common ancestor. I hope that further studies will uncover that the difficulties involved in attempting to derive all the beetles from a common ancestral type are fully as great.

—Reviewed by Walter E. Lammerts

Dinosaurs

The reader probably has heard it reported that, when someone comes face to face with a giraffe for the first time, that person has exclaimed, "There ain't no such animal!" The fossil remains of giant dinosaurs have from earliest history likewise flashed before the consciousness of man as something he has had difficulty in comprehending.

In early literature Leonardo da Vinci (1452-1519) appears as the first man to suggest that fossil shells and bones were the remains of animals which once lived in the places where they

were found. Many flatly denied this, and for two centuries the controversy raged.

Believers in the Organic Theory of fossils were frequently persecuted. At that time just about everybody else thought fossils: (1) resulted from a "plastic force" which worked in nature, (2) were freaks or sports of nature, or (3) were "devices of the Devil" placed in the rocks "to delude men from true belief."

When at last many devout Christians could no longer doubt the organic nature of fossils, their imaginations still ran away with them, and the larger bones in particular were credited to buried titans who had perished in Noah's flood. In 1706 it was said, "These giant men had waded as long as they could keep their heads above the clouds, but were at length confounded with all other creatures, and the new sediments after the flood gave them the depth we now find."

If a poll were taken today among men (and women) in the street to discover if they believed the giant dinosaur skeletons they see in museums are the remains of actual animals which once walked the earth, many scientists might be surprised at the large proportion of doubters. How frequently is the museum worker asked if these giant exhibits are not fakes, fanciful displays set up by scientists merely to entertain visitors!

But dinosaur bones are "for real." Fossil reptilologists have been quite busy trying to trace out the relationships of animals. In the opinion of evolutionists the dinosaurs dominated the earth during the hundred million years, or more, known as the Age of Reptiles, or Mesozoic era, and then suddenly vanished some sixty-three million years ago at the close of the Cretaceous period.

For one who likes stories, the pros and cons of the evolutionist taxonomists, who argue for this or that line of development among vertebrates, would make interesting reading. Albeit, the uninitiated may grow a mite confused and eventually turn to a newspaper reporter to learn what the specialists are saying. Here is the origin of dinosaurs as portrayed by Ruth Moore:

After the reptiles first appeared — first evolved as vertebrates able to lay their eggs on dry land — they went on to split into many groups. One fathered present-day turtles. Another gave rise to mammals. Still another sired modern snakes and lizards. But the most conspicuous and varied group, the diapsid archosaurs, branched into crocodiles, flying reptiles, birds and — largest but not longest-lived — dinosaurs. (*Evolution of LIFE* Nature Library, p. 120)

Does not that read smoothly and convincingly? But now the whole carefully laid-out group of "reptiles" is due another vigorous rattling among the dry bones. The first paragraph of a recent article reads as follows:

Traditionally dinosaurs are classified as two or three separate, independent groups of reptiles in the Subclass *Archosauria*. But evidence from bone histology, locomotor dynamics, and predator/prey ratios suggest that dinosaurs were endotherms with high aerobic metabolism, physiologically much more like birds and cursorial mammals than any living reptiles. Recently Ostrom has argued forcefully that birds are direct descendents of dinosaurs and inherited high exercise metabolism from dinosaurs. Here we present evidence that dinosaurs are a single, monophyletic group, and that the key advancements of endothermy and high exercise metabolism are justification for removing dinosaurs from the Reptilia and placing them with birds in a new class the *Dinosauria*.⁵

Because of this report I believe that many chapters about reptiles by evolutionists will have to be rewritten. Dinosaurs must not be considered as ectothermic ("cold-blooded") reptiles, but as endothermic ("warm-blooded") vertebrates

possessed of high exercise metabolism

Now a speculation: Is it not possible that God created the various huge dinosaurs in the beginning, but because of the progressive deterioration of the wisdom and strength of man after the entrance of sin, God recognized the necessity of letting these great animals perish in Noah's flood? Just how would men's domiciles fare, if a 50 ton *Brachiosaurus* came to "visit," and chanced awkwardly to bump against a corner of a domicile?

—Reviewed by Frank L. Marsh

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- ³Tudge, Colin. 1973. Throw away your zoology textbooks, *New Scientist*, 60(871):393.
- ⁴Manton, S. M. 1973. *Journal of Zoology*, 171:111.
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REPORT OF 1974 BOARD OF DIRECTORS MEETING

The annual meeting of the Board of Directors of the Creation Research Society was held at Concordia Lutheran Junior College, Ann Arbor, Michigan. The meeting started Friday, April 19, 1974, at 19:15 hours with a minute of silent prayer. Present: T. Barnes, E. Williams, H. Armstrong, W. Frair, R. Korthals, W. Rusch, C. Burdick, D. Gish, G. Howe, J. Klotz, W. Lammerts, J. Moore, H. Morris, H. Slusher, W. Tinkle. Absent: L. Butler, J. Grebe, K. Linsenmann.

The 1973 minutes were read and approved. The treasurer reported income for the year at \$36,344.08 and expenses \$23,706.54, leaving a thirty-first of March balance of \$32,806.41. Report approved.

The membership and subscription report showed a grand total of 2,198 with 514 voting members, 1178 sustaining members, 213 student members and 293 library and other subscribers. Memberships increased 201 over last year, including 102 additional voting members.

Discussion centered on the *Quarterly*. The Editor recalled that the *Quarterly* is produced primarily for voting members; so the cost is more for libraries and other subscribers. An increasing number of publications are quoting from, or reprinting papers from the *Quarterly*, and recently some have been translated into Portuguese, German and Danish. In answer to the request that more popular material be published, the Editor pointed out that other groups perform this function.

As of March 3, 1974, book sales were: text-

book—29,973; teacher's guide—1,082; teacher's laboratory manual — 826; student's laboratory manual—2,638. The revised textbook is expected to be ready for classes in the fall of 1974. Twenty-five hundred paperbacks of each of the two present anthologies have been printed recently. Three forthcoming paperback anthologies will deal respectively with geosciences, biosciences and teleology.

Armstrong assigned two books for review, and Frair showed the new Davis & Solomon, McGraw-Hill-published, college biology textbook wherein the authors include a treatment on what creationists believe.

Barnes and Morris told about the Newton Scientific Association in England. The group has a belief statement similar to that of C.R.S., and members hope to promote creation at a scholarly scientific level. Since the C.R.S. is international, no joint arrangement is planned.

Morris reported on Institute of Creation Research (I.C.R.) activities. These primarily are preparation of monographs. Secondly, textbooks for public and Christian schools are being produced. I.C.R. staff people teach at Christian Heritage College. Activities also include outside speaking and debates. Both Morris and Gish indicated that students generally are very sympathetic to a creation approach.

Williams reported that Bob Jones University faculty members are preparing textbooks for Christian schools. A ninth grade physical science book containing teleology and creation material

with Bible verses and even some accelerated sections is to be ready by December, 1974.

President Barnes showed Board members his letter to the editors of *Science* and pointed out that the editors have refused to publish the letter. The letter was written as an answer to a report published in *Science* 182:696 with false allegations about the C. R. S. Barnes' letter identified the false allegations and clarified the fact that C. R. S. is not a lobbying organization, nor is it officially engaging in any dispute with any other organization.

Before the first session closed, Burdick showed slides of reported geologic overthrusts where Precambrian rock lies on top of Cretaceous rock, and he indicated some of the problems involved with overthrust interpretations. Also he displayed some fossil forest pictures. The meeting was adjourned at 23:45.

The next session was called to order at 09:37, April 20. Again there was a time of silent prayer.

For promoting the C.R.S., so far neither magazine subscription agencies nor book display setups have been obviously very helpful. Presently C.R.S. is not advertising in any publications. Also the decision was reached at this time not to carry advertisements in the *Quarterly*.

Lammers hopes to get pilot experiments set up to determine if so-called evaporites could be layered experimentally as precipitates with mud present. The research committee will handle this matter.

Consideration was given to possible dialogue with other organizations and exchange of journals. Exchanges currently are being handled by the managing editor.

The following motions were carried:

1. That a copy of the constitution and by-laws including date of adoption be reproduced and sent to every voting member and later to each new voting member;

2. That C.R.S. buy advertising folders from I.C.R.;

3. That the integrating theme of the 1975 annual be the young earth with consequences and applications in various fields of science;

4. That Research Proposal Instructions include appropriate information for those submitting research proposals for funds to support projects relevant to creationism;

5. That publication editors are authorized to receive petty cash for whatever secretarial help may be necessary;

6. That Concordia library be provided with presently available and future C.R.S. *Quarterlies* for interlibrary loan;

7. That certain Christian college libraries be selected as repositories for C.R.S. *Quarterlies*, which will be supplied; these repositories will be stated in the *Quarterly*;

8. That the constitution (Article III, Section 2) be amended to provide for a new elevated category of membership;

9. That Clifford Burdick, Wayne Frair, George Howe, John Meyer, John N. Moore and George Mulfinger be nominated to run for election to the Board of Directors for a three-year term beginning in 1975.

By secret ballot all present C.R.S. officers were reelected. The invitation to hold the next Board of Directors meeting at Concordia was accepted. The dates are April 18 and 19, 1975. Adjournment was at 15:10 hours.

—Wayne Frair, Secretary

PROPOSED AMENDMENT TO C.R.S. CONSTITUTION

Article III. Membership

Sec. 2 Membership shall be divided into three classes. **Fellows** shall have all rights and privileges of voting membership but shall be exempted from the payment of dues. **Voting membership** is limited to scientists having at least an earned graduate degree in one of the natural or applied sciences. **Sustaining members** are those who do not meet the criteria for voting membership. Sustaining members shall have all rights and privileges except those of voting and holding office. Fellows shall be elected by the Board of Directors at any annual meeting by ballot vote. To be designated as a fellow an individual must receive the favorable vote of two-thirds of the members of the Board of Directors.

SPECIAL NOTICE

The following candidates have been nominated by the Board of Directors to serve for a three-year term beginning in 1975:

Clifford Burdick

Wayne Frair

George Howe

John Meyer

John N. Moore

George Mulfinger

The date of the annual election is March 1, 1975.

MONKEYS AND TYPEWRITERS

A. J. "MONTY" WHITE

Evolutionists believe that many happenings will occur by chance, given enough time. Darwin, for instance, based his famous book *The Origin of Species* on vast periods of time being available for natural selection to occur.¹

He who can read Sir Charles Lyell's grand work on the Principles of Geology, which the future historian will recognize as having produced a revolution in natural science, yet does not admit how incomprehensibly vast have been the past periods of time, may at once close this volume.

In order to prove that chance happenings can occur, the evolutionist teaches, for instance, that a monkey tapping away randomly (i.e. by chance) at the key board of a typewriter would eventually write correctly not only words, but phrases, sentences and even whole books! Let us examine this hypothesis.

Words

Assume that a monkey types randomly at a typewriter which has 60 keys: 26 small letters, 26 capital letters, a space, full stop, comma, colon, semi-colon, two brackets and a question mark. Suppose that the monkey is to produce the word, "monkey."

Now the chances of the monkey typing the letter "m" is 1 in 60, and of typing the two letters "mo" is $(1/60)^2$, i.e. $(1/60 \times 1/60)$, or 1 in 3600. Hence the chances of the monkey typing the word, "monkey," randomly is $(1/60)^6$, i.e. 1 in 46,656,000,000.

In other words,² if the monkey could type at a rate of three digits per second, he (or she) would have to type for over 450 years before he would randomly type the word, "monkey!"

Phrases

To type on such a typewriter the above title, *Monkeys and Typewriters*, would take a million monkeys over a thousand million million million years (i.e. 10^{27} years) with each monkey typing at a rate of three digits per second. This time period is a hundred thousand million million (i.e. 10^{17}) times as long as the age of the universe imagined by cosmogonists.

Sentences

Dr. J. C. Whitcomb, in his book *The Early Earth*, asks the following question³ regarding the random typing of sentences:

How long would it take a monkey, pounding irrationally at a typewriter, to come up with the words of Genesis 1:1 ("In the beginning God created the heavens and the earth")?

*A. J. "Monty" White is a keen creationist. His address is 3 Caernarvon Court, Hendredenny Park, Caerphilly, Glam., CF8 2UB, U. K.

and then answers it in the following manner⁴:

In fact, let's allow a million tireless monkeys to pound away at record speed (twelve keys a second) on simplified typewriters with only capital letters. Now, try to think of a rock so large that if the earth were at its center its surface would touch the nearest star. This star is so far away that light from it takes more than four years to get here, travelling 186,000 miles every second. If a bird came once every million years and removed an amount equivalent to the finest grain of sand, *four such rocks* would be worn away before the champion super simians would be expected to type Genesis 1:1.

Books

The Authorized Version of the Bible has 773,692 words composed of 3,566,490 letters. Hence there are 4,340,181 letters and spaces in the Bible.

The chance of typing the A. V. Bible by chance on a typewriter composed of only 26 letters and a space is $(1/27)^{4340181}$ or approximately 1 in $10^{6200000}$. This number is 1 followed by 6,200,000 zeros—this number of zeros would fill over one and a half Bibles! This number is so great that its magnitude is unimaginable.

There are estimated to be about 10^{80} atoms in the universe. Eighty zeros would take up about four lines of a column in the C.R.S. *Quarterly*; six million two hundred thousand zeroes would require over 300,000 lines filling over 2,500 pages of the C.R.S. *Quarterly*—this is longer than the number of pages in the C.R.S. *Quarterly* Volumes 1 - 10! And these calculations are not for a perfect copy—there would be no capital letters and no punctuation!

In view of the above mathematical conclusions, an argument for occurrence of chemical and biological evolution by chance processes is not a mathematically-sound proposition. In conclusion, therefore evolutionists should stop "monkeying around" and realize that life did not evolve by random processes, but that "in six days the Lord made heaven and earth, the sea, and all that in them is." (Exodus 20:11).

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- ³Whitcomb, J. C. 1972. *The early earth*. Evangelical Press, London, p. 74.
- ⁴The quote in this quote is taken from Bolton Davidheiser, *Evolution and Christian faith*. 1969. Presbyterian and Reformed Publishing Co., p. 363, using the calculations of William Feller, *An introduction to probability theory and its implications*. 1950. Wiley, 1:266.

BOOK REVIEWS

Perspectives in Zoology by Alan Boyden. 1973. Pergamon Press, Inc., Elmsford, New York 10523. 288 pages. \$16.50.

Reviewed by Wayne Frair*

Author Alan Boyden has an international reputation as the United States "father" of systematic serology, and founder of the Serological Museum at Rutgers University. Now he has published in one volume his concerns, which he says are "polyphyletic in origin," and "during a period of several decades" have been "naturally selected" with aid from his critics. The final book has a wealth of information especially valuable for scientists and students of science concerned with topics of classification and evolution.

Before further discussing the book, I should like to make a few personal remarks which should be of interest to readers of the *Creation Research Society Quarterly*. These comments will deal with the author's philosophical-religious orientation, his personality, and his pedagogical technics. Dr. Boyden was my Ph.D. adviser and a man for whom I have great admiration.

During three years I was a student in Dr. Boyden's department; and, for the last of the three, I had an office next to his. I saw him working on his book more than twelve years ago, for I graduated as his last full-time graduate student in 1962, the year he retired.

One day he invited me to lunch in the faculty restaurant at Rutgers and asked me to tell him about my religious beliefs, which as a Christian I was pleased to do. He showed considerable sensitivity to and respect for what I explained about my experience with Jesus Christ and what I believed the Bible taught; and he affirmed to me his own belief in God.

During my work with him I saw how concerned he was about the feelings of others and how dedicated he was to his scientific pursuits. He had a scintillating sense of humor. He encouraged his students to work hard, to respect authority, and to be critical when handling data, cautioning us about extrapolating unwarranted conclusions, including many current evolutionary ideas.

As is clear in his book, Dr. Boyden is not antievolutionary, but he does object to unjustified use of an evolutionary philosophy in certain branches of biology—primarily taxonomy. Taxonomists should classify according to the "present nature" of organisms (phenetic approach), not on the basis of inferred past history of organisms (phylogenetic approach).

Dr. Boyden speaks of those who seem to be more concerned with the phylogeny of a group, rather than with phenotypes, as "ancestor worshipers" and as those having a "backward look." One of the unfortunate consequences of Darwin's work was that there came to be

... too much emphasis on ancestry as subject for study; on the backward look, leading to the most unscientific attitudes in regard to taxonomic work. A host of phylogenies grew up like weeds in the garden of systematics, and even organisms with no fossils available for study were claimed to be classified in accordance with their phylogenies! (p. 117)

Author Boyden is concerned that "homology," the central concept of morphology, is defined often with reference to phylogeny. Homologous organs should not be thought of as similar because of descent from common ancestors. This again is ancestor worship. He emphasizes that we should go back to 19th century Owen who was first to establish a precise definition of homology in his writings.

Homology now, according to Boyden, is a condition in which there is *essential structural similarity*. This is based upon (1) relative positions and connections of parts with (2) due attention being given adult structures and development of structures. With regard to cells, the Protozoa, or single-celled organisms, are to be thought of as homologous with single cells of multicellular animals.

In the 19th century, Owen expressed his belief that similar parts belonged to a predetermined pattern, and he said that homology indicated that the animals were constructed on a common type. Though Boyden himself does not favor a conception of types, or "plans of creation," he does say:

It was perfectly natural then that early in the study of animals, types of organization became apparent . . . and it might even be true some day that to be a comparative morphologist, or even a typologist, will be more commendable than to be a guesswork phylogenetist. It is sometimes difficult in these times to understand the extreme criticisms of "typological thinking" made by Kiriakoff (1959), Simpson (1961), Mayr (1965) and others. (pp. 116-117)

Dr. Boyden feels that the assumed evolution of ancient things cannot be studied by utilizing "the birds and the bees and *Drosophila*." He recognizes the problem of an evolutionist's trying to understand changes, which he postulates as having occurred in very simple organisms, when today the models he uses are very complex.

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Boyden cites Kerkut (*Implications of Evolution*, 1960) as an important critical account dealing with problems of origins. In agreement with Kerkut's suggestion about polyphyletic origins, Boyden believes that multiple origins of life are more probable than a single origin of life.

... since the beginnings of our fossil records, there appear to have been no major types evolved from other major types, such evolution, if it did occur, having taken place before the fixation of the original major phyletic types.

On the view of polyphyletic origins then, such general resemblances in protoplasmic systems as we find in *all* living organisms do not necessarily mean genetic relationship. Rather, such resemblances may be fundamentally convergent, and represent only the minimum requirements or "conditions of existence" which all living systems must possess. (p. 27)

All the major types of animals likely to leave fossils are represented in the early Paleozoic rocks. This period of evolution is therefore characterized as much by the conservation of change as by the changes themselves. It is evident that in the processes of establishing the major animal types, limits have been built into protoplasmic systems beyond which living patents cannot be extended. Of evolution by gradual variation leading to adaptive radiation there has been a great deal and in the Insecta for example almost infinite variability on a basic patent has taken place. But so far as is known over this long period of time no insect and no arthropod has evolved any different pattern leading to another phylum. (p. 35)

Interestingly Boyden presents in the last chapter a strong case demonstrating that though Darwin was an evolutionist, he did not take a phylogenetic approach in his scientific work. The prime example is Darwin's detailed description and classification of barnacles, a work which today still stands as a most important reference for those dealing with the cirripeds. Another example is an 1869 animal classification book by T. H. Huxley.

Boyden's longest and best illustrated chapter presents in considerable detail the history and present status of systematic serology which began at the turn of this century. Boyden and students, starting in the third and fourth decades of the 20th century, improved serological techniques. Thus, studies of molecular or protein structure could be utilized, along with studies of microscopic and macroscopic anatomies of organisms, in order to improve classification schemes and determine possible relationships.

Though some readers may like to see a treatment of more available literature on certain of the topics treated by Boyden, there is much to be gained from understanding his perspectives. His main emphasis is for a *realist* phase of taxonomy when primary attention is given to available characteristics of organisms (their nature), rather than ancestry, in establishing a natural classification. The author has the tone of a prophet. He is as the voice of one crying in the wilderness to a generation which well could afford to listen.

Postscript: The basic emphasis of the volume reviewed above is in accord with the position of present numerical taxonomists who prefer to stress phenotypes rather than phylogenies in their classification procedures. For example, see Sneath, P. H. A., and R. R. Sokal. 1973. *Numerical Taxonomy*. W. H. Freeman and Co., San Francisco. 573 pp.

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Evolution. The Fossils say NO! by Duane T. Gish, Ph.D. 1973. ICR Publishing Co., San Diego. Second edition. 129 pages. Paperback. Reviewed by Bolton Davidheiser*

This book covers important features of the fallacy of the fossil record as evidence of evolution. Darwin pointed out the gaps in the fossil record and expected them to be filled with the passage of time.

Dr. Gish furnishes quotations from evolutionary experts in which they admit that the gaps have not been filled, and no longer are expected to be filled. Instead of a graded series of changes from one major group to another, new forms appear fully developed among the fossils. This is in accord with the creationist model and not the evolutionary model.

The concept of catastrophism long has been anathema to the evolutionists, and uniformitarianism has taken its place—the belief that geological processes in the past have been comparable to the kinds of changes which are observable and going on in the present. Problems inadequately explained by uniformitarianism include mountain building, sedimentary deposits thousands of feet thick miles above sea level, whole shoals of fossil fish, and deposits of large numbers of other vertebrates including types not normally found together today.

References are given to the accumulating scientific papers wherein researchers question the reliability of radioactive age-dating methods. Also considered and refuted are compromises which some creationists propose in order to make allowance for the vast amounts of time demanded by evolutionists.

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Some anthropologists consider *Ramapithecus* a candidate for human ancestry—based upon a few teeth and jaw fragments. But the range of variation in teeth among modern chimpanzees has been found to be greater than that between the teeth of the supposed hominid *Ramapithecus* and two species of *Dryopithecus*, fossil apes. The living galada baboons have small incisors and cheek teeth (though the males have large canines), “yet it has many of the facial, dental, and mandibular characteristics used to classify *Ramapithecus* as a hominid!”

Zinjanthropus boisei, which Louis Leakey originally called a man, turned out to be an australopithecine. (An artist of the *National Geographic Magazine* reconstructed the face so modern that no one would give him a second glance in a crowd—if he had on a hat to conceal the fact that he had practically nothing above the eyes.) Leakey's *Homo habilis* now also is considered an australopithecine by various anthropologists. His son Richard Leakey has published evidence that the australopithecines were long-armed knuckle-walkers.

Java Man, originally *Pithecanthropus erectus*, has been graduated to *Homo erectus*. The femur

which provided the erectus part of the name, was found fifty feet from the skull cap. The subsequent finds by von Koenigswald have not included limb bones.

Because of discovery of the apparently contemporary Wajak skulls, which Du Bois kept secret for 30 years, further doubt is cast upon the significance of Java man as an evolutionary type. With Java man, Peking man, originally *Sinanthropus pekinensis*, has been graduated to *Homo erectus*. Dr. Gish summarizes the strange story of “Peking man,” which in a number of aspects reads more like science fiction than like serious science.

Finally, the finding of “Skull 1470,” which Richard Leakey says is nearly three million years old and really human, will shatter the whole evolutionary story built upon so-called hominoids, if anthropologists accept Leakey's pronouncements. An artist for the *National Geographic Magazine* obligingly painted a reconstruction which is very human indeed. The only thing peculiar is the overly flat nose—and the shape of the nose cannot be ascertained from a skull.

FILM REVIEW

Fossil Record. 16 mm. Running time: 20 minutes. Produced by St. George Films, 136 Old Christchurch Road, Bournemouth, England. Price about \$190.00.

Reviewed by W. Dennis Burrowes*

(Editor's Note: This film may be rented from Mr. Burrowes at a cost of about \$10.00. The film is available also from the Bible-Science Association, Box 1016, Caldwell, Idaho 83605.)

The photography is excellent, and the message straightforward. Taking for granted the classical “geological column” and associated time-scale, the film illustrates the successive strata by means of colored charts, and depicts estimated durations of the major plant and animal groups by means of vertical lines traversing the strata.

The demonstrator proceeds to show that these “lines” generally run parallel to each other, and generally persist together through long ages of geological time. That is, even if the classical geological column is accepted, the major groups do not follow each other in a time series as depicted

in typical genealogical trees; rather major groups can be linked only by imaginary “chains,” which are not consistent with the accepted fossil record.

Punctuating the presentation are excellent illustrations of some living representatives of the plant and animal groups represented in the fossil record.

One might have expected a film on the fossil record to present some detail regarding the phenomena of stratification and fossilization. Also, many viewers will regard as a major omission the exclusion of any reference to the challenging questions that have been raised concerning the validity of the whole geological time scale.

Perhaps the authors considered it best, particularly in an English environment, to limit themselves to one demonstrable argument, and best to avoid attempting to challenge the foundations of orthodox geological science—before they were ready to pursue the controversy by substituting a viable alternative system.

This film should be useful for schools and general audiences as a visual introduction to what the fossil record supposedly shows, and what it definitely does not show.

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LETTERS TO THE EDITOR

(Continued from page 107)

Scientific Theology

The article by Dr. H. B. Holroyd (C.R.S. *Quarterly*, 10 (3): 158-162) must be construed in some places as Deistic and in other places as Pantheistic, especially in the last paragraph: "Scientific Theology is based upon a philosophy of dualism, that the universe is mind and matter, and this is accepted by both physical scientists and Christians."

This dualism is not Scriptural, therefore not true. That the universe is physical, I agree. That it is mind, I disagree. The mind (I suppose that the writer means God) is absolutely independent from the universe.

As for teaching this so-called Natural Theology in school, it is just what is being taught; and it was taught by the Greeks also. Call it chance or determinism, one is as good (or bad) as the other. The Bible teaches Theism, Christian Theism (the only kind of Theism); therefore, Christian doctrine teaches Creation with a perfectly controlled plan.

God's handiwork is surely revealed in the universe, as the Scripture teaches, all to His Glory; but unless there is supernatural theology man must come to the false conclusion of Natural Theology which the article advocates.

I should suggest that the author familiarize himself with the works of Cornelius Van Til, Professor of Apologetics at Westminster Theological Seminary, Philadelphia, Pa. Therein he may see that Natural Theology is no theology unless supplemented with Biblical Theology. Ephesians 3:9-11:

... God, Who created all things by Jesus Christ: to the intent that unto the principalities and powers in heavenly places might be known by the church the manifold wisdom of God, according to the eternal purpose which He purposed in Christ Jesus our Lord.

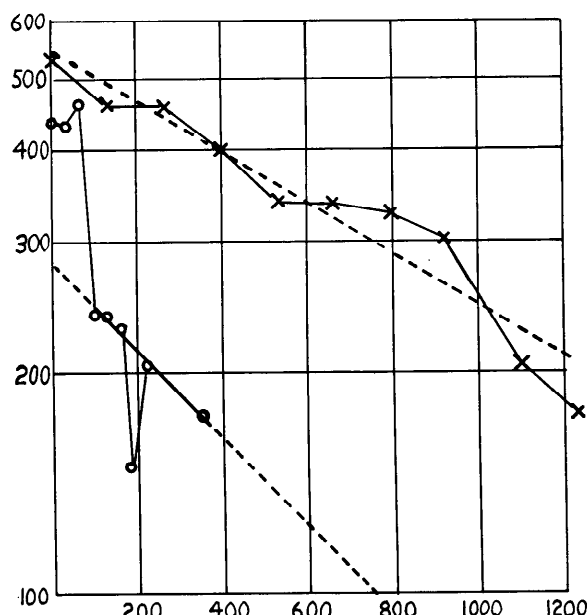
Sincerely,
In Our Lord Jesus Christ,
D. E. Blind
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☆ ☆ ☆

More on Patriarch Ages

Mr. Strickling has contributed an exceptional service in his mathematical analysis of the chronological data from Genesis 11. (C.R.S. *Quarterly*, 10:149-154, December, 1973). Yet, it is instructive to extend his analysis by plotting life span against date of birth, rather than against date of mid-point in the life span.

The rationale for this is that the vigor and longevity of an individual is determined more by the circumstances at conception, during the prenatal development, and during childhood growth than by the circumstances at mid-life. On this basis the data from the Masoretic text fit an exponential relationship better than do the data from the Septuagint.



Life span (plotted vertically) vs. time of birth, in years after the Flood (plotted horizontally) for the patriarchs in Genesis 11. The crosses indicate data from the Septuagint, the circles those from the Masoretic text. The Septuagint has one name more: Cainan. The scale of the graph is semi-logarithmic, to make an exponential relation plot as a straight line.

With the data from the Septuagint no three consecutive patriarchs will fit an exponential curve. With the Masoretic text data points for Peleg, Reu, Serug, Terah and Abraham fall as close as could be expected on a single exponential line (within plus or minus five years). Nahor obviously came to an untimely end, according to the Masoretic text data. Arphaxad, Salah and Eber miss the exponential line for Peleg-Abraham by 160-200 years.

No simple exponential relationship can be constructed to fit any three of the data points for Arphaxad, Salah, Eber, Peleg and Reu.

The best visual construction for the exponential relationship between the data points for Peleg, Reu, Serug, Terah and Abraham yields $A = 283 \exp(-t/720)$ in Mr. Strickling's notation.

(Here "exp" has been used to indicate powers of "e," for ease in printing—Editor). This relationship extrapolates to a 70 year life span 1008 years after the Flood, or 656 years after the birth of Abraham.

Recognizing that many variables influence human life span, it is worthwhile to determine a simple exponential relationship which comes closest to fitting the Septuagint data. $A = 548 \exp(-t/1240)$ seems to provide as good a visual construction as can be made, with individual data points as much as 45 years too great (Nahor) and 30 years too small (Cainan and Abraham) for a good fit. This relationship extrapolates to a 70 year life span 2545 years after the Flood, or 1313 years after the birth of Abraham.

On the basis that circumstances associated with birth and childhood are generally the best

determinors of life expectancy, the data from the Masoretic text for Genesis 11, in comparison with that from the Septuagint, agrees more satisfactorily with a presumed exponential decrease in life span and in projecting the period in history when an average life span of 70 years was reached.

These observations in themselves do not provide a basis for giving preference to the Masoretic text of Genesis 5 and Genesis 11, but they may be helpful in the determination of preference.

Cordially yours,
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On the Danger of Over-Sweeping Generalizations about Ages

In the light of recent articles on geological field work in specific areas, ought we not to be aware of making quick generalizations correlation all Cenozoic or all Mesozoic or all Late Paleozoic strata with Flood or post-Flood deposition? For example:

(a) Nevins¹ has written, "Mesozoic strata also seem to be post-Flood as subaerial lava flows are well documented."

(b) Yet in the same issue Lammerts² showed from the Glarus overthrust that Jurassic (Mesozoic) strata were probably Flood-deposited before later Permian (Paleozoic) deposition.

(c) Burdick and Slusher³ earlier showed Mesozoic strata underlying Paleozoic rocks in an apparent Flood-deposition scheme.

If our Society truly believes in Christian reconstruction along Biblical lines, should we not take these valuable findings as indicators that each specific area will have to be investigated without regard to global generalizations about Paleo-, Meso-, and Cenozoic categories? The history of science testifies to the blinding effect that such categories have even upon those desperately trying to reach the truth.

Let's drop the whole outmoded scheme, shaped as it was according the uniformitarian viewpoint, and continue the fine work of Burdick, Slusher, Lammerts, Nevins, Northrup, Peters, Coffin, and others, location by location, until enough field data exist to permit Creationists to draw new global generalizations.

Field work and experiments like those proposed by Lammerts⁴ should be our number one priority. Let patience reign that God will guide us into the truth of His general revelation, and let us forsake premature categorization on a global scale.

References

- ¹Nevins, Stuart E. 1972. Is the Capitan limestone a fossil reef?, *Creation Research Society Quarterly*, 8(4): 231-248.
- ²Lammerts, Walter E. 1972. The Glarus overthrust, *Creation Research Society Quarterly*, 8(4):251-255.
- ³Burdick, C. L., and Harold Slusher. 1969. The Empire mountains—a thrust fault, *Creation Research Society Quarterly*, 6(1):49-54.
- ⁴Lammerts, Walter E. 1974. Editorial note, *Creation Research Society Quarterly*, 10(4):237.

Sincerely,
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CREATION RESEARCH SOCIETY

History The Creation Research Society was first organized in 1963, with Dr. Walter E. Lammerts as first president and editor of a quarterly publication. Initially started as an informal committee of 10 scientists, it has grown rapidly, evidently filling a real need for an association devoted to research and publication in the field of scientific creationism, with a current membership of about 500 voting members (with graduate degrees in science) and over 1600 non-voting members. The *Creation Research Society Quarterly* has been gradually enlarged and improved and is now recognized as probably the outstanding publication in the field.

Activities The Society is solely a research and publication society. It does not hold meetings or engage in other promotional activities, and has no affiliation with any other scientific or religious organizations. Its members conduct research on problems related to its purposes, and a research fund is maintained to assist in such projects. Contributions to the research fund for these purposes are tax deductible.

Membership Voting membership is limited to scientists having at least an earned graduate degree in a natural or applied science. Dues are \$8.00 (Foreign, \$9.00 U. S.) per year and may be sent to Wilbert H. Rusch, Sr., Membership Secretary, 2717 Cranbrook Road, Ann Arbor, Michigan 48104. Sustaining membership for those who do not meet the criteria for voting membership, and yet who subscribe to the statement of belief, is available at \$8.00 (Foreign, \$9.00 U. S.) per year and includes subscription to the Annual Issue and Quarterlies. All others interested in receiving copies of these publications may do so at the rate of the subscription price for all issues for one year: \$11.00 (Foreign, \$12.00 U. S.).

Statement of Belief Members of the Creation Research Society, which include research scientists representing various fields of successful scientific accomplishment, are committed to full belief in the Biblical record of creation and early history, and thus to a concept of dynamic special creation (as opposed to evolution), both of the universe and the earth with its complexity of living forms.

We propose to re-evaluate science from this viewpoint, and since 1964 have published a quarterly of research articles in this field. In 1970 the Society published a textbook, *Biology: A Search for Order in Complexity*, through Zondervan Publishing House, Grand Rapids, Michigan 49506. Subsequently a Teachers' Guide and both Teachers' and Students' Laboratory Manuals have been published by Zondervan Publishing House. All members of the Society subscribe to the following statement of belief:

1. The Bible is the written Word of God, and because it is inspired throughout, all its assertions are historically and scientifically true in all the original autographs. To the student of nature this means that the account of origins in Genesis is a factual presentation of simple historical truths.

2. All basic types of living things, including man, were made by direct creative acts of God during the Creation Week described in Genesis. Whatever biological changes have occurred since Creation Week have accomplished only changes within the original created kinds.

3. The great Flood described in Genesis, commonly referred to as the Noachian Flood, was an historic event worldwide in its extent and effect.

4. We are an organization of Christian men of science who accept Jesus Christ as our Lord and Saviour. The account of the special creation of Adam and Eve as one man and woman and their subsequent fall into sin is the basis for our belief in the necessity of a Saviour for all mankind. Therefore, salvation can come only through accepting Jesus Christ as our Saviour.

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By this system bibliographic material is not injected into the text, but is localized in the reference list at the end. A complete citation for interested readers is also guaranteed. Several typical forms follow by way of example:

References

¹Smith, G. M. 1950. The fresh-water algae of the United States. Second Edition. McGraw-Hill Book Co., Inc., N. Y., p. 434.

²*Ibid.*, p. 436.

³*Ibid.*, p. 307.

⁴Ris, H., and R. N. Singh. 1961. Electron microscope studies on blue-green algae, *Journal of Biophysical and Biochemical Cytology*, 9:63-80.

⁵Smith, G. M. *Op. cit.*, p. 482.

⁶Corner, E. J. H. 1961. Evolution (in) Contemporary botanical thought. Edited by Anna M. MacLeod and L. S. Copley. Quadrangle Books, Chicago, Ill. p. 417.

⁷A "clone" of plants is a group of adult plants originally derived from one parent plant by means of vegetative reproduction.

⁸Ris, H., and R. N. Singh. *Op. cit.*, p. 69.

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