

DISCUSSION No. 9

**EVIDENCE FOR THE
GENESIS FLOOD**

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EVIDENCE FOR THE GENESIS FLOOD

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[Some of the evidence presented here is also briefly considered in the discussion about time.]

INTRODUCTION TO THE GENESIS FLOOD

THE CONFLICT

The Genesis Flood is the key event that **explains the geologic and fossil record** in the context of the biblical account of beginnings.

That it ever occurred, or that it had any significance, is usually denied by the scientific community.

For instance, textbooks of geology and paleontology that deal with the history of life on earth hardly ever mention the Genesis Flood and do not consider it to be of any significance. It is generally assumed by the scientific community that the geologic layers and life evolved slowly over billions of years. Some catastrophes are now acknowledged, but not the comprehensive Genesis Flood as the event that laid down the major part of the sedimentary layers that contain most of our fossils.

INTRODUCTION TO THE GENESIS FLOOD

THE CONFLICT

In contrast, the Bible devotes several chapters (Genesis 6-8) to describing the Genesis Flood; also the leading personalities of the Bible, such as **Peter, Paul, Christ and God**, refer to the Flood and consider it to be a real event.

The Flood is described in the first part of the Bible, and too often that early part is considered to be myth, while the rest of the Bible is taken more seriously. You cannot do that and be consistent, because in the latter part of the Bible the writers and leaders such as God and Christ treat the first part of the Bible, including Creation and the Flood, as factual and not myth.

INTRODUCTION TO THE GENESIS FLOOD

THE CONFLICT

The Bible tells us that eventually after creation humanity became so wicked that God had to try and rectify the situation and brought on the Genesis Flood. God was sorry that He had created man, and this problem “grieved him at his heart” (Genesis 6:6). But He warned humanity and saved those He could in the ark. While some try to suggest that God was less than kind in destroying the wicked, the broader picture suggests that He did it for the future benefit of mankind as a whole.

The next few verses from the Bible give some insights into these circumstances.

Genesis 6:5-8

“And God saw that the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually. And it repented the Lord that he had made man on the earth, and it grieved him at his heart. And the Lord said, I will destroy man whom I have created from the face of the earth; both man, and beast, and the creeping things, and the fowls of the air; for it repenteth me that I have made them. But Noah found grace in the eyes of the Lord.”

INTRODUCTION TO THE GENESIS FLOOD

EXTENT OF THE GENESIS FLOOD

Some suggest that the flood was a **local event**, probably somewhere in the Middle East.

However, that is not what the Bible is saying. The verses from the flood account in Genesis that are quoted in the next slide illustrate how it is very difficult to suggest that the Bible is speaking of a local event. These comments seem to be all inclusive for the earth.

COMMENTS ON THE EXTENT OF THE FLOOD, FROM GENESIS 7:19-23.

- 19. And the waters prevailed exceedingly upon the earth; and all the high hills that were under the whole heaven, were covered.**
- 20. Fifteen cubits upward did the waters prevail; and the mountains were covered.**
- 21. And all flesh died that moved upon the earth, both of fowl, and of cattle, and of every creeping thing that creepeth upon the earth, and every man.**
- 22. All in whose nostrils was the breath of life, of all that was in the dry land died.**
- 23. And every living substance was destroyed which was upon the face of the ground, both man, and cattle, and the creeping things, and the fowl of the heaven; and they were destroyed from the earth: and Noah only remained alive and they that were with him in the ark.**

INTRODUCTION TO THE GENESIS FLOOD

FLOOD LEGENDS

One does not need to go to the Bible to find the concept that there has been a Flood. The story of some kind of flood is very common in the folk literature from around the world.

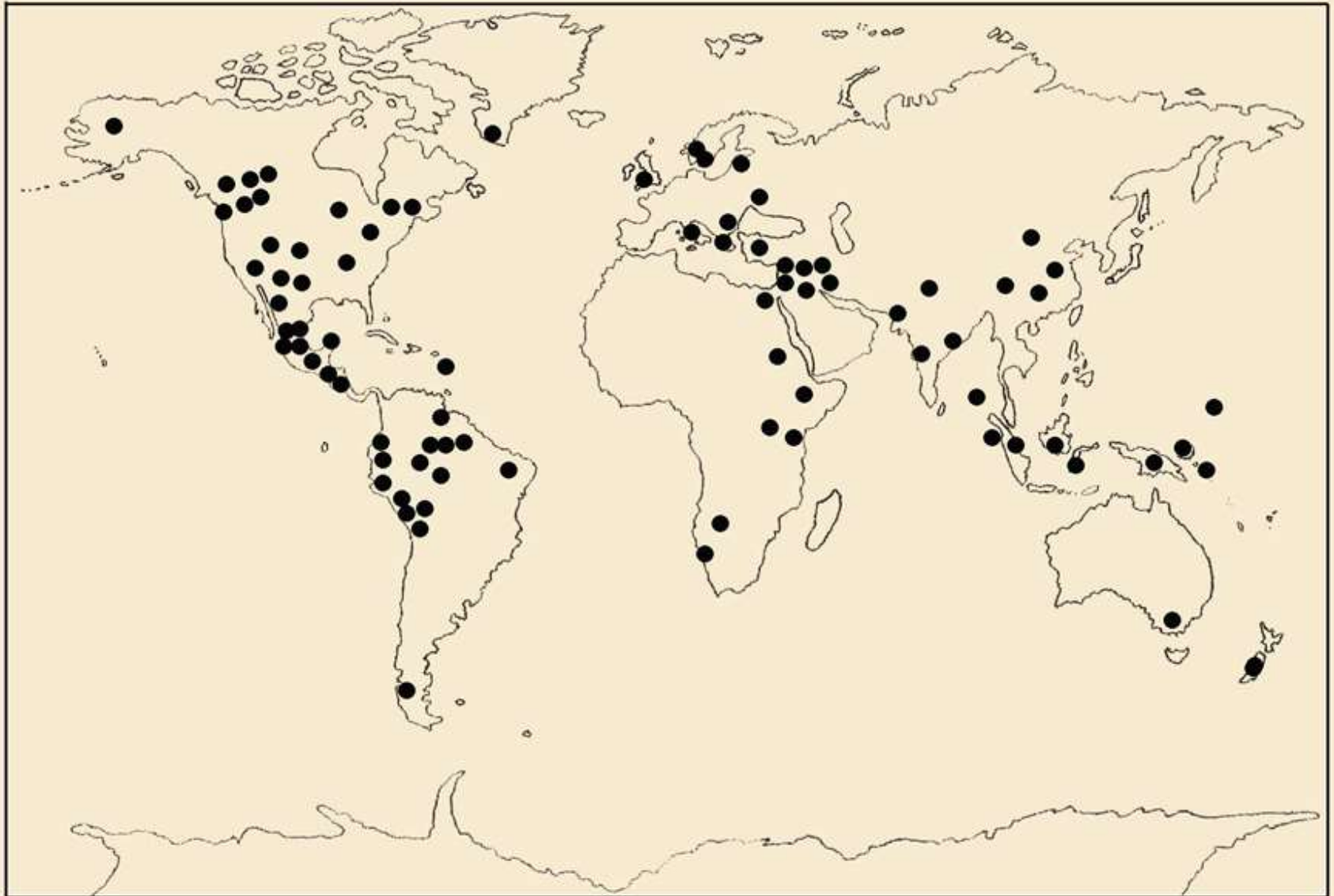
Some **270 flood stories** have been recorded by scholars.

While the distribution of these stories is not uniform, it is generally worldwide.

The dots on the next slide that represent the location of a number of flood stories confirms their worldwide distribution.

DISTRIBUTION OF SOME FLOOD STORIES

Each dot indicates a local version.



Based on Andree R. 1891. *Die Flutsagen ethnographisch betrachtet.*

INTRODUCTION TO THE GENESIS FLOOD

FLOOD LEGENDS

Could the many world-wide flood stories actually just represent local floods that were interpreted in the past as worldwide simply because they occurred before mankind had the communication capabilities to determine how extensive floods were?

This does not seem to be the case, because of the extreme dominance of flood stories in the folk literature compared to other calamities. The next slide provides the evidence.

If these perceived worldwide calamities were many localized events over long periods of time we would also expect a more or less even distribution of various other causes over that time. That is not the case. Note that earthquakes, drought, and pestilence do not even appear on the next slide, while floods are six times as common as any other causes.

One could hardly expect that accounts of major catastrophes would be so selective of the flood theme if they had not been based on an actual worldwide event that affected all of mankind.

CAUSES OF WORLD CALAMITIES IN FOLK-LITERATURE

(Not End of World)

Based on Classification by Steiith Thompson 1955 (1989) in Motif-index of Folk-Literature. Bloomington, Indiana: Indiana University Press.

CAUSES	NUMBER OF REFERNCES
Deluge (world flood)	122
Fire	19
Continuous winter	6
Large stones	2
Ogre	1
Earthworm	1
Objects (dead and alive)	1
Sunrise	1

INTRODUCTION TO THE GENESIS FLOOD

THE FLOOD AND CREATION WEEK

The worldwide Genesis Flood is the event that **reconciles the geologic record** of the earth with the **six day creation** described in the Bible.

In the biblical model, God creates all the various kinds of organisms in six days a few thousand years ago. Man becomes evil over time, and this is followed by the Genesis Flood that buries the life on the earth. Since there was no life before creation week, and there was little time and comparatively little geologic activity both before and after the Genesis Flood, the Flood is the event that buried the animals and plants that became most of the fossils in the geologic column, especially the Phanerozoic part that contains most of the fossils.

The next slide emphasizes the six day creation concept of the Bible. There is no other creation model in the Bible, although a few scholars have tried to suggest vague allusions to such elsewhere in the Bible.

THE TEN COMMANDMENTS

Spoken by God and written by the finger of God. (Exodus 20, 31-34)

“Remember the Sabbath day, to keep it holy....
For in six days the Lord made the heavens and the earth, the sea, and **all** that is in them, and rested on the seventh day.”

It would be a strange kind of God who would create life over millions of years and then ask us to keep the Sabbath holy because he did it all in six days.

THE GENESIS ACCOUNT (Genesis 1-2)

God creates the various forms of life **all** within six days each with its own evening and morning.

INTRODUCTION TO THE GENESIS FLOOD

THE FLOOD AND CREATION WEEK

Some try and preserve a six day creation week and also the long geologic ages (millions of years) for the fossil layers, by suggesting that creation week occurred a long time ago. However when you realize that we have very different kinds of organisms at the different levels of the geologic column, this challenges the idea that the geologic layers represent millions of years if God created **all** in six days as He states.

For instance in the next slide of the Grand Canyon, the lower arrow points at a region of trilobite fossils assumed to be 550 million years old. The upper arrow points at a region with fossil ferns assumed to be some 300 million years old. You do not find trilobites with the ferns and you do not find ferns with the trilobites that are assumed to be 250 million years older.

Hence, if there is 250 million years between trilobites and ferns, there is no way that God created **all** in six days!



INTRODUCTION TO THE GENESIS FLOOD

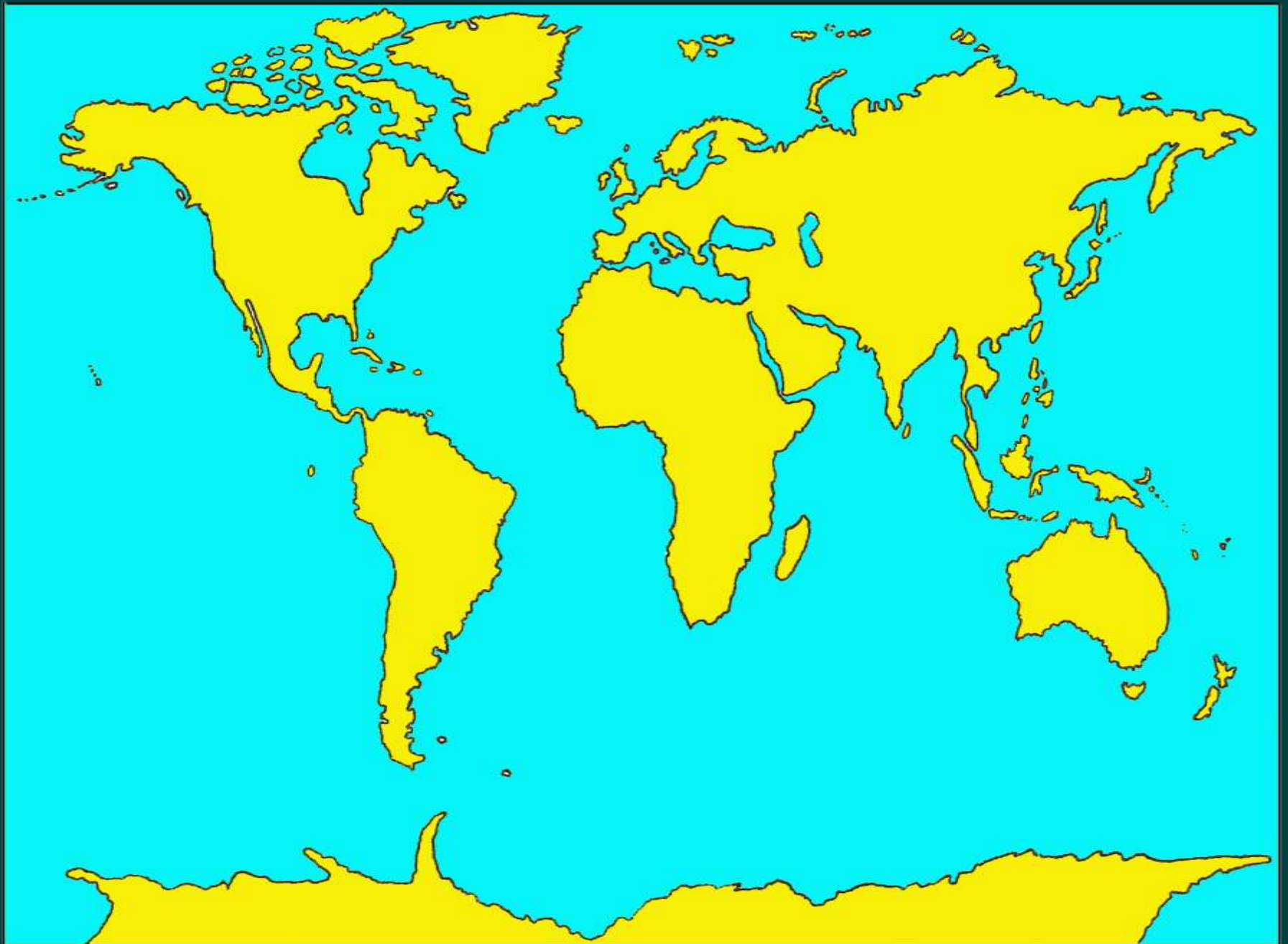
THE FLOOD AND CREATION WEEK

In other words, because we have different kinds of fossils at different levels in the geologic column, as soon as you start suggesting millions of years between these layers, there is no way that God created all the various basic kinds of organisms in six days.

In a biblical context, the best explanation for the order of the fossils in the geologic column is ecological zonation and related factors discussed in the section titled “The Fossil Record and Creation.”

A local Genesis Flood, as proposed by some, will not suffice to reconcile the geologic column to a six day creation. The geologic column is well represented, at least in some of its major parts, on all the continents of the earth.

It takes a worldwide flood, burying fossils over the entire earth to explain the geologic column in the context of a six day creation. The next slide illustrates that entire earth.



INTRODUCTION TO THE GENESIS FLOOD

THINGS CAN HAPPEN RAPIDLY: CATASTROPHISM

While on our normal earth changes are quite slow, that is not the case when you have catastrophes. You would expect a multitude of catastrophes during the year of the Genesis Flood.

Sediments can be deposited very rapidly. For instance, an underwater turbidity current (to be discussed later) can lay down 200 meters of sediment in one locality in a few minutes.

Erosion can at times also be very rapid. The Teton Dam in Idaho that was 100 meters (300 feet) high was eroded down by water activity in less than an hour.

The bed of Kanab Creek in Utah (next illustration) was lowered around 15 meters (50 feet) in 8 hours. Before the flash flood that caused this, there was no gorge, the creek was at about the level of the arrow to the right of the picture.



INTRODUCTION TO THE GENESIS FLOOD

THINGS CAN HAPPEN RAPIDLY

For millennia the importance of catastrophes has been recognized; however, more recently during the late 19th and early 20th centuries, geology adopted the view that geological changes happened very slowly over very long periods of time; major catastrophes were not important. This eliminated the Genesis Flood from geological interpretations.

However, the data from the rocks themselves, has forced a reversal in geological thinking; it is now recognized that major catastrophes occur, and while the Genesis Flood is not accepted as a fact, catastrophic activity is. Geologists now tend to put a lot of time between the catastrophes they recognize. Many of the newer catastrophic interpretations fit well with the Genesis Flood concept.

The next slide is a quotation acknowledging this basic philosophical change in geological thinking.

Erle Kauffmann, paleontologist, quoted by Roger Lewin. 1983. Extinctions and the history of life. Science 221:935.

“It is a great philosophical breakthrough for geologists to accept catastrophe as a normal part of Earth history.”

INTRODUCTION TO THE GENESIS FLOOD

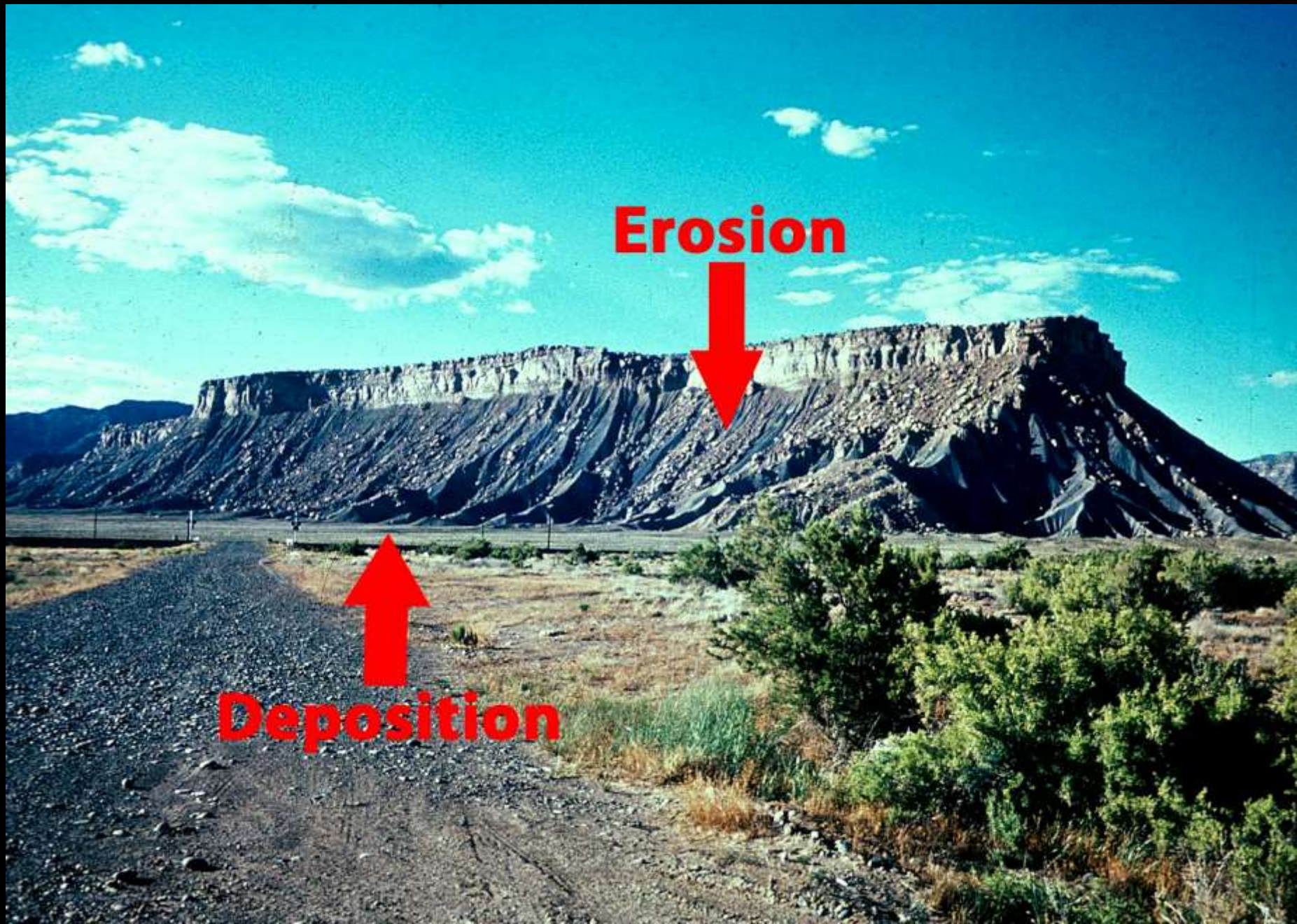
SEDIMENT DEPOSITION

During the Flood, you would expect a lot of erosion and deposition of sediments (clay, sand, gravel, boulders) by water. That water erodes the sediments from higher places and deposits them in lower places.

It is important to note that sediments are usually laid down by water in **horizontal layers**. This is occasionally called “the law of original horizontality.”

Often the horizontal layers deposited by water are later distorted by regional uplift, lowering or compression, so the layers are no longer horizontal, but are bent, turned on edge, or even reversed. Later, erosion sometimes exposes these intriguing deposits so we can study them.

The next slide illustrates erosion of dark layers in a cliff. The sediments from the cliff are deposited on the flat gray plane at the base of the cliff, illustrating the law of original horizontality. These new deposits eventually often become cemented and hard.



Erosion

Deposition

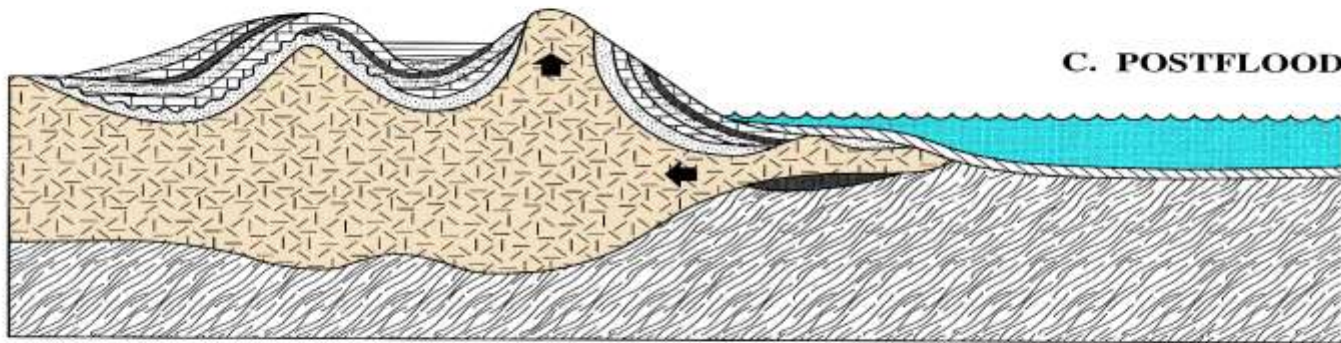
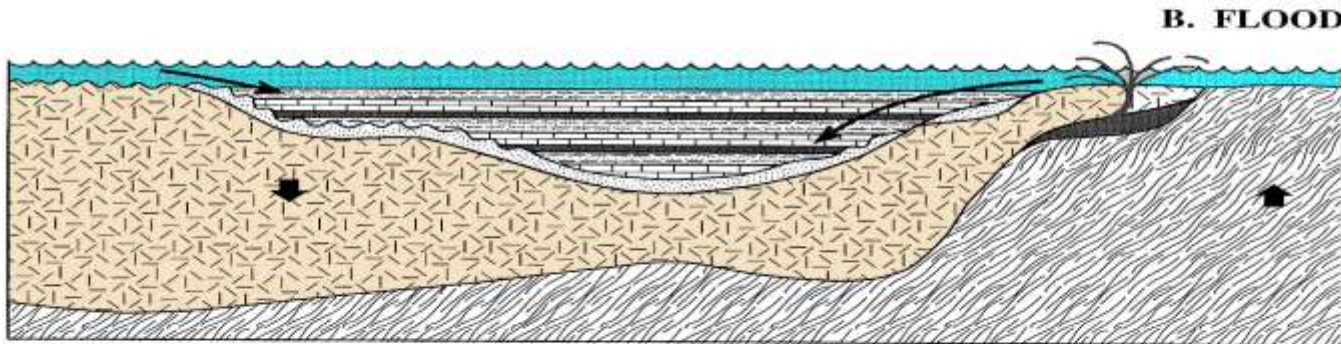
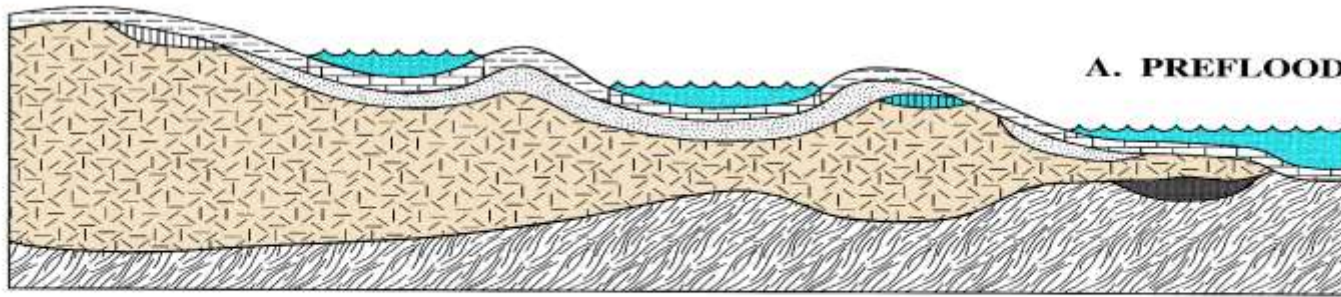
INTRODUCTION TO THE GENESIS FLOOD

WHAT HAPPENED AT THE FLOOD?


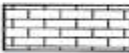



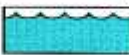
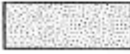




We don't know exactly what happened at the Flood. Only a few details are given in the Bible.

Those who believe in creation have considered several models of the Flood, but much more study in this challenging area is needed.

The next illustration is one model of the Flood. Three stages are considered: before (preflood), during (flood), and after (postflood) the Flood. The figures show in cross-section part of a continent (left) and part of the ocean (right). In this model it is proposed that during the Flood, the continents sank down. They received sediments eroded from the continents themselves and also sediments from the oceans. The continents were completely covered by water. At the end of the Flood the continents rose up. They would be expected to do this naturally because their lighter (less dense) granite base is expected to rise (literally float up) above the denser basalt and schist. As the continents rose, sediments were folded and partly eroded by the receding waters.



LEGEND

	VOLCANIC AND MOLTEN ROCKS		MARINE SEDIMENTS		TERRESTRIAL SEDIMENTS
	MIXED PRECAMBRIAN & TERRESTRIAL SEDIMENTS		GRANITIC ROCKS		WATER
	PRECAMBRIAN SEDIMENTS		BASALTS AND SCHISTS		AQUIFERS
	POSTFLOOD TERRESTRIAL SEDIMENTS		POSTFLOOD MARINE SEDIMENTS		

INTRODUCTION TO THE GENESIS FLOOD

WHAT HAPPENED AT THE FLOOD - 2

On a worldwide scale, the rocks of the earth move about by widespread plastic flow. Some lateral compression of the continents by plate tectonic activity (continental drift) is also suggested in this model.

While we don't know many details about the Flood, we do know enough of what happened generally, that we can find significant scientific evidence for such a very unusual event.

SUMMARY OF INTRODUCTORY COMMENTS ABOUT THE GENESIS FLOOD

- **The conflict is between ideas of slow changes over billions of years versus rapid changes during the catastrophic Genesis Flood.**
- **The Genesis flood was a “universal” event over the whole earth.**
- **The abundance of flood legends provide unusual evidence of the biblical flood.**
- **The Genesis flood is the major event that reconciles the geologic layers to the six day creation event described in Genesis and Exodus.**
- **There has been a recent trend in geology towards rapid catastrophic interpretations.**
- **One would expect a lot of sediment and fossil transport during the Genesis Flood.**
- **While we do not have many details of what happened during the Genesis flood, it was such an unusual event that one can test it scientifically (i.e. the data from nature) as it is compared to the “scientific” model of slow changes over long geologic ages.**

**EVIDENCE FOR
THE
GENESIS FLOOD**

SCIENTIFIC EVIDENCE FOR THE GENESIS FLOOD

WE WILL CONSIDER THE FOLLOWING:

1. Abundant marine sediments on the continents
2. Abundant underwater activity on the continents
3. Continent-wide current activity
4. Unusually widespread sedimentary layers
5. Rates of erosion of continents way too fast
6. Flat gaps in the sedimentary layers
7. Incomplete ecological systems
8. Unusual coal deposits

EVIDENCE FOR THE GENESIS FLOOD

1. ABUNDANT MARINE SEDIMENTS ON THE CONTINENTS

Since the continents that have a lower density literally float higher up on the surface of the earth compared to the ocean floor that has a higher density, it is unusual that we find so much sediment from the oceans on the continents.

You can tell that you have sediments from the ocean by the kind of rock you have, but especially by the fossils found therein. If the fossils represent marine organisms, such as marine snails, etc., this indicates that the deposit came from the ocean.

In the next illustration which is a sedimentary deposit from California, you know that you are dealing with marine organisms, because the shells found are those of organisms that live in the ocean.



EVIDENCE FOR THE GENESIS FLOOD

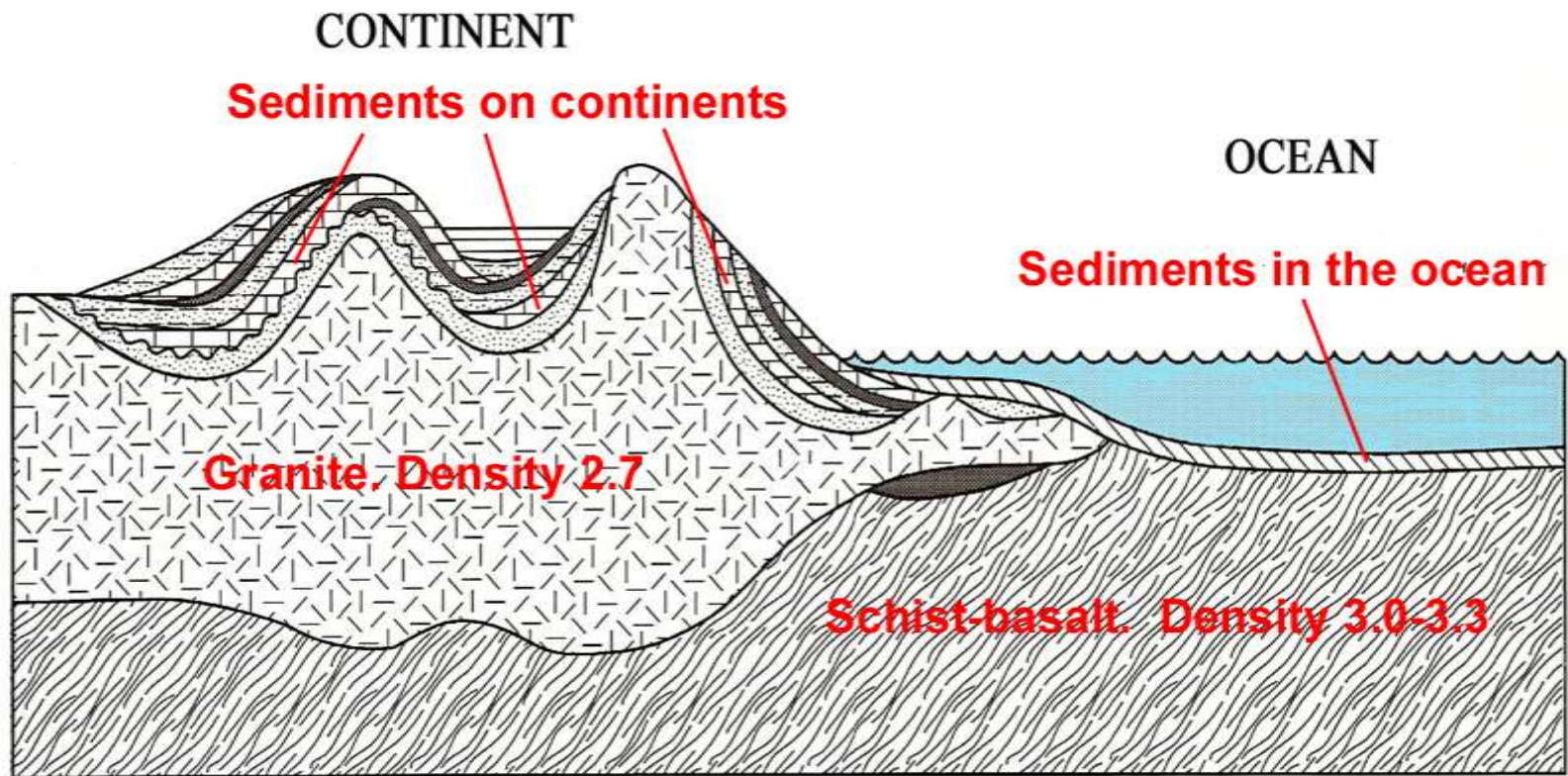
1. ABUNDANT MARINE SEDIMENTS ON THE CONTINENTS

The problem the marine sediments pose for a normal slowly evolving earth is well illustrated in the next figure.

The granite forming the mass of the continent to the left of the figure has a density of around 2.7. The basalt and schist rocks below the ocean floor and lower down below the continents has a density of 3.0 or higher. That is why we can say that the continents literally float above denser rocks. On a world-wide scale, rocks are relatively soft. To have lighter granite continents is a fortunate arrangement because this keeps the continents above sea level so we can have dry land to live on.

The incongruity is that when we look at the sediments of the earth, the sediments from the ocean are thicker on the continents than in the oceans! See the next figure where more than half of the thick layers of sediment on the continent come from the ocean.

This is what you would expect from a worldwide flood, not from ordinary conditions. Why is there so much sediment from the oceans on the continents!



EVIDENCE FOR THE GENESIS FLOOD

1. ABUNDANT MARINE SEDIMENTS ON THE CONTINENTS

The statement quoted in the next frame is from a respected geologist and illustrates the dilemma. This would not be a problem if the community of geologists believed in the Genesis Flood.

Some geologists suggest the sediments of the ocean were subducted (swallowed) into the earth at the ocean trenches. That is why they are so scarce in the ocean. But this is no solution. Subduction of sediment is too slow. For instance, our present rivers pour sediments into the oceans at a rate that is at least five times as fast as sediments are subducted by the ocean trenches. If the present rates of sediment production by rivers into the oceans were extended over the long geologic ages, our oceans could have been filled up many times with sediments.

Shelton JS. 1969. Geology Illustrated. San Francisco: W.H. Freeman & Co., p 28.

“Marine sedimentary rocks are far more common and widespread on land today than all other kinds of sedimentary rocks combined. This is one of those simple facts that fairly cry out for explanation and that lie at the heart of man’s continuing effort to understand more fully the changing geography of the geologic past.”

EVIDENCE FOR THE GENESIS FLOOD

1. ABUNDANT MARINE SEDIMENTS ON THE CONTINENTS

The following picture of the Grand Canyon illustrates the abundance of sediments from the ocean on the continents. While the Grand Canyon lies many hundreds of kilometers inland from the ocean, about $\frac{3}{4}$ of the layers you see in the wall of the canyon are from the ocean.

The succeeding picture is of earth's highest mountain, Mount Everest, that rises 8848 meters above sea level. Yet, Everest is composed of rocks from the ocean.

Some geologists challenge the Genesis Flood concept by pointing out that there is not enough water on earth to cover Everest. This is an invalid criticism, because both uniformitarian (evolutionary) geologists and creationists postulate that the rocks that form Everest were first formed low down under water and have risen up dramatically since then. See the flood model illustration given earlier above.





MOUNT EVEREST. Photo courtesy Corel Professional Photo Libraray

EVIDENCE FOR THE GENESIS FLOOD

2. ABUNDANT UNDERWATER ACTIVITY ON THE CONTINENTS

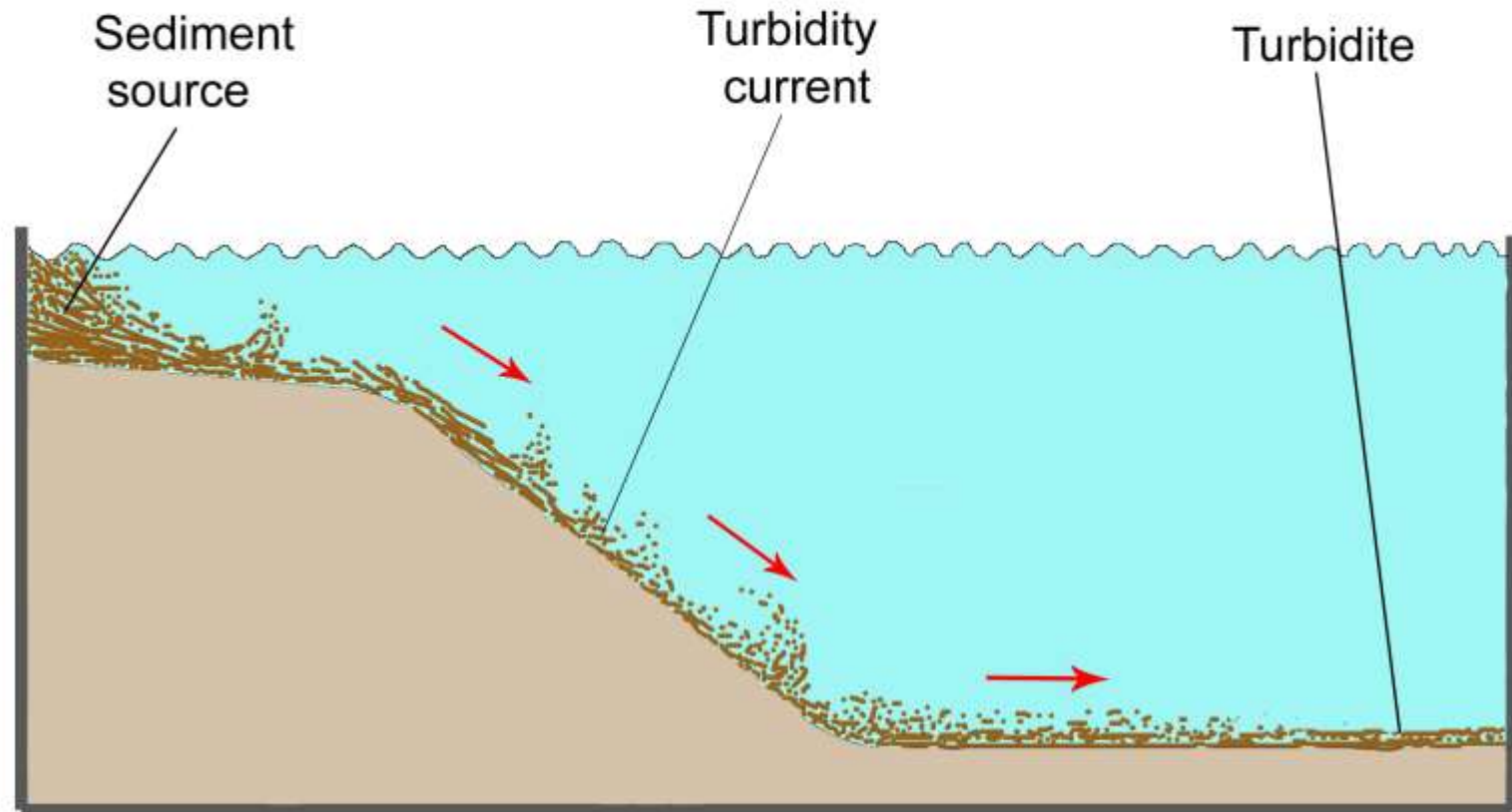
Turbidites are an interesting type of sedimentary deposit often found on the continents. They only form under water, and they form very rapidly. **Turbidites** result when large quantities of loose sediment flow down an underwater slope.

The mixture of sediment and water that flows down a slope to form a turbidite has a greater density than ordinary water, hence it tends to keep its integrity as a separate heavier flow called a **turbidity current**, even though both the turbidity current and the water above it are fluid. The denser turbidity current flows below the lighter water somewhat like denser water flows on land below lighter air.

As the turbidity current slows down towards the end of its flow, it lays down a characteristic kind of deposit called a **turbidite**. Turbidites are complex and can consist of many layers originating from a single turbidity current.

The next figure illustrates the process of forming a turbidite.

FORMATION OF A TURBIDITE



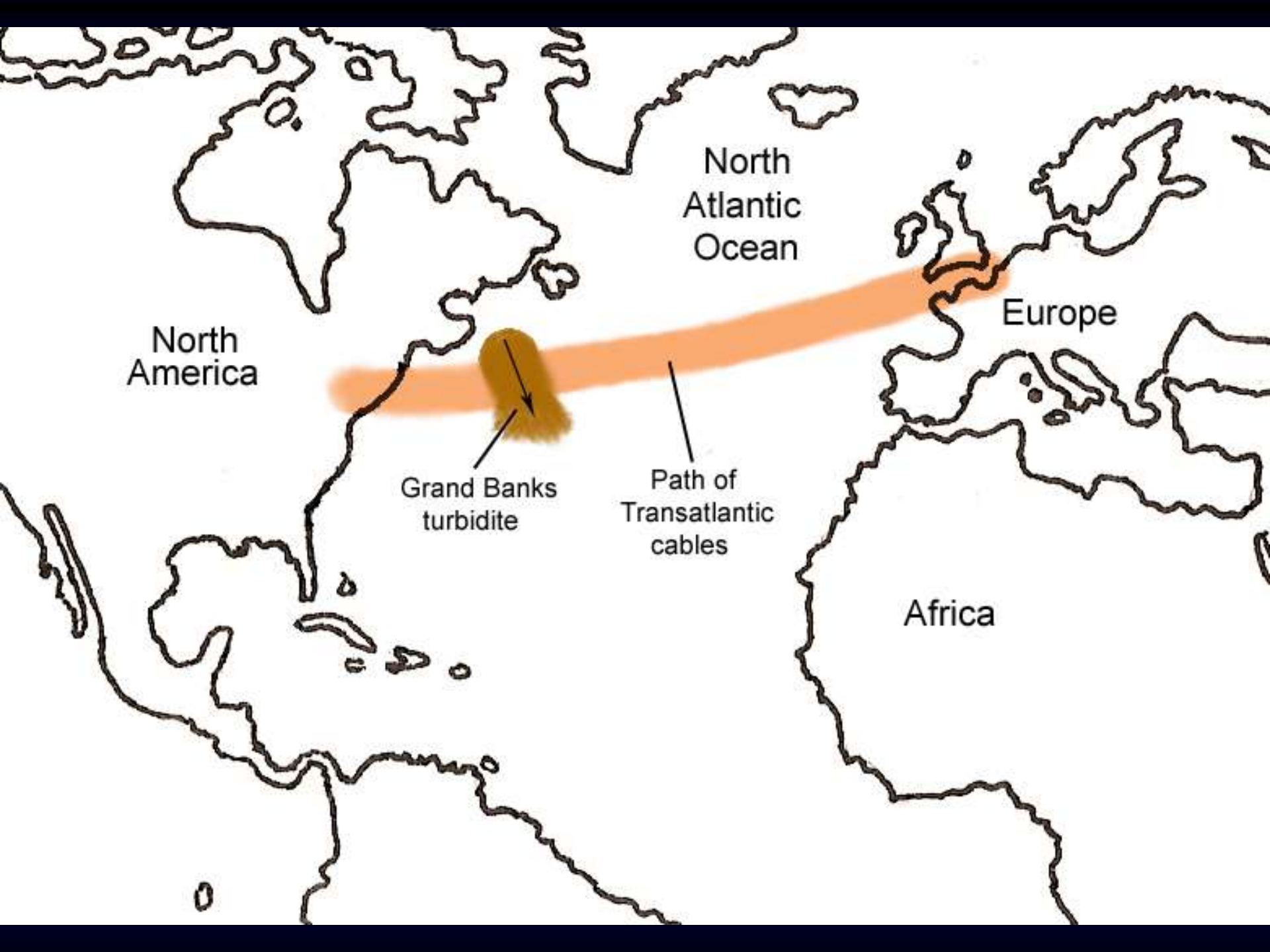
EVIDENCE FOR THE GENESIS FLOOD

2. ABUNDANT UNDERWATER ACTIVITY ON THE CONTINENTS

A significant turbidite was formed in 1929 in the North Atlantic Ocean when an earthquake near Nova Scotia and Newfoundland shook some sediments loose along the edge of the continental shelf. A turbidity current flowed down the slope of the continental shelf and spread 100 cubic kilometers of sediments as a turbidite nearly a meter thick over 100,000 square kilometers on an abyssal plain of the North Atlantic. Some of the sediment had traveled over 700 kilometers from its source. The turbidity current ran into the hulk of the Titanic that had sunk in 1912.

Unfortunately for commercial telegraphy, but fortunately for geology there were twelve transatlantic cables between North America and Europe lying in the pathway of this turbidity current, and the current broke them. By comparing the location of the cables and the time when the messages quit being transmitted across the Atlantic it was possible to determine how fast the turbidity current was traveling.

The next figure sketches the general location.



North Atlantic Ocean

North America

Europe

Grand Banks turbidite

Path of Transatlantic cables

Africa

EVIDENCE FOR THE GENESIS FLOOD

2. ABUNDANT UNDERWATER ACTIVITY ON THE CONTINENTS

The data indicates that the turbidity current was sometimes traveling in excess of 100 kilometers per hour. The last cable, more than 650 kilometers from the continental shore, broke a little more than 13 hours after the earthquake.

Turbidites that represent underwater activity have turned out to be surprisingly abundant on the continents of the earth.

It is not only turbidites that indicate underwater activity on the continents. Other geologic features of sediments like huge submarine fans also indicate this.

The next three pictures are examples of turbidites at various localities on the continents of our globe. (1) Ventura Basin, inland California, the slanted layers of the stream bank are made of turbidites, each turbidite is 10-30 centimeters thick and consists of many layers; (2) Switzerland, far from the oceans - each layer, thick or thin, is a separate turbidite; (3) New Zealand, near the ocean - each layer seen is a turbidite.







EVIDENCE FOR THE GENESIS FLOOD

2. ABUNDANT UNDERWATER ACTIVITY ON THE CONTINENTS

On rare occasions, when the right conditions prevail, turbidites will form on the bottom of lakes on the continents of the earth. However, the great abundance of turbidites and related deposits, found in the sedimentary deposits of the continents seems out of character with the abundance of stream and slow lake deposits now being deposited on the continents. In other words the great abundance of turbidites in the ancient sedimentary layers of the continents, suggests that in the past, they were subjected to a lot of underwater activity as expected from the Flood.

EVIDENCE FOR THE GENESIS FLOOD

3. CONTINENT-WIDE CURRENT DIRECTIONS

Often when looking at sediments you can tell in which direction the water that deposited the sediment was flowing. One uses ripple marks, comparison of size and orientation of particles, etc. to tell this. A comprehensive study [Arthur Chadwick. 1993. Megatrends in North American paleocurrent. SEPM Abstracts with Programs 8:58] of the direction of flow of sediments as they were being deposited up through the geologic column indicates major directional trends as expected for a world-wide catastrophe such as the Genesis Flood.

At present on our continents, sediments are being deposited in all directions as streams flowing in different directions deposit sediments along their banks or into lakes or the oceans.

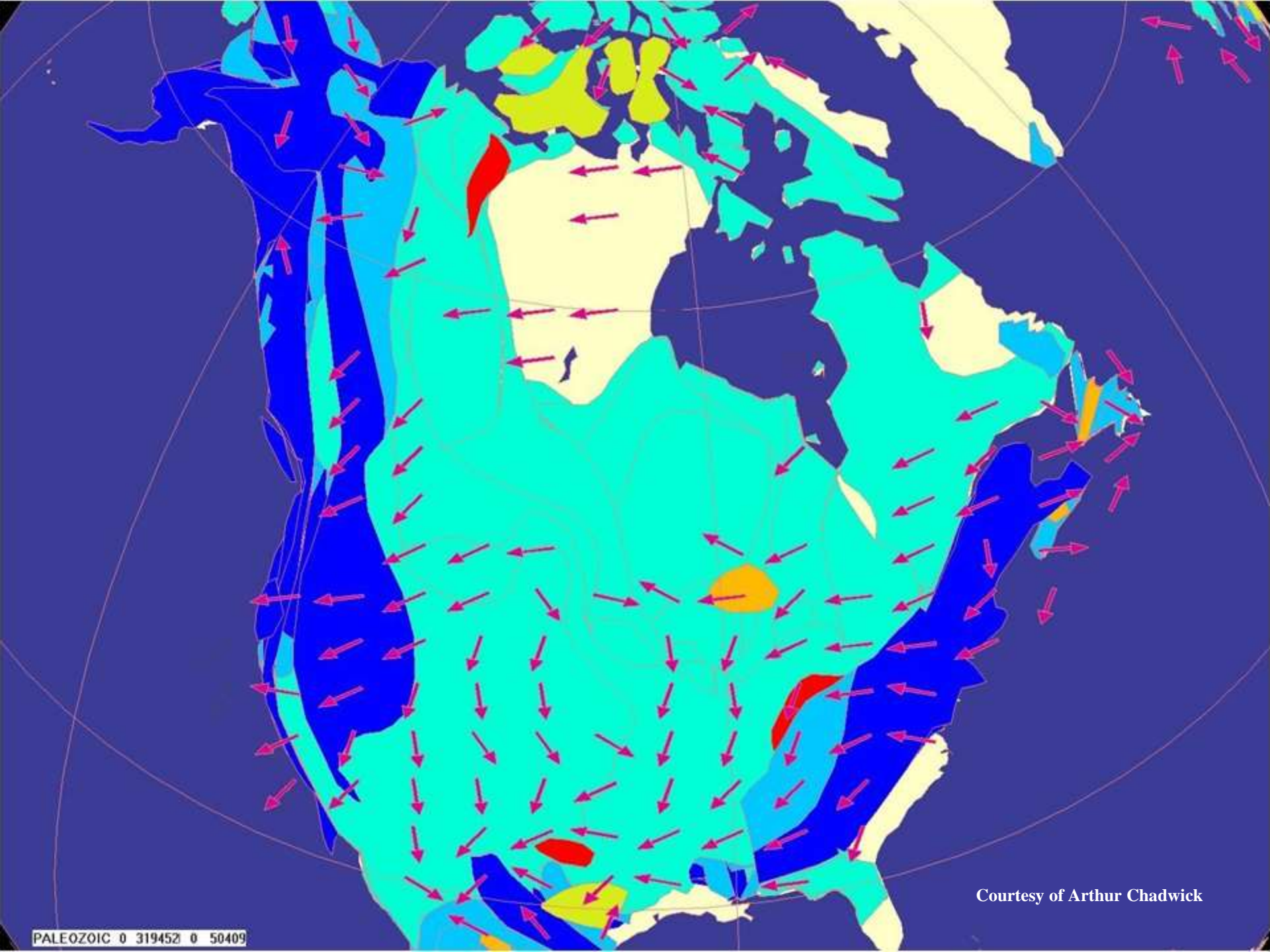
When we look in the geologic layers, especially for the Paleozoic and Mesozoic of the Phanerozoic in North and South America, it appears that the direction of deposition of sediment was mainly towards the west in the Paleozoic and early Mesozoic, while it shifts towards the east higher up in the upper Mesozoic. This suggests very major catastrophic activity in one direction.

EVIDENCE FOR THE GENESIS FLOOD

3. CONTINENT-WIDE CURRENT DIRECTIONS

In the Cenozoic we don't see a dominant directionality, and this is what one would expect in the later stages of the flood as the waters receded off the continents in all directions.

The arrows in the next figure shows the dominance of flow in sediments towards the southwest for North America for the Paleozoic portion of the geologic layers. This is based on many thousands of samples from all over North America and reflects world-wide directional activity.



Courtesy of Arthur Chadwick

EVIDENCE FOR THE GENESIS FLOOD

4. UNUSUALLY WIDESPREAD SEDIMENTARY LAYERS

Geologists tend to divide the sedimentary layers into units called formations. A formation is a large group of layers that has special characteristics that separate it from layers above and below.

Many of these unique formations are extremely widespread and **do not at all reflect the ordinary localized distribution** of stream and lake deposition now occurring on our continents. This widespread pattern is what you would expect from a major catastrophe like the Genesis Flood.

Furthermore, these formations, that are not all that thick, would have to have **extremely flat areas on which to have been deposited**. Just one major river valley in the midst of the area would prevent deposition of the unique formation sediments over the area.

In the next figure we illustrate five widespread Mesozoic formations found near vernal Utah.



Frontier

Mowry

Dakota

Cedar Mountain

Morrison

EVIDENCE FOR THE GENESIS FLOOD

4. UNUSUALLY WIDESPREAD SEDIMENTARY LAYERS

Details regarding the five formations designated in the previous illustration include:

Frontier Formation: Sandstone and shale. Some marine fossils
Covers 300,000 square kilometers

Mowry Shale: Many fish scales
Covers 250,000 square kilometers

Dakota Formation: Sandstone and shale. Marine and land fossils
Covers 815,000 square kilometers

Cedar Mountain and similar adjacent Burrow Canyon Formations. Fossils include rare dinosaurs and plants
Covers 130,000 square kilometers

Morrison Formation. Sandstone and shale. Dinosaur fossils
Covers 1,000,000 square kilometers

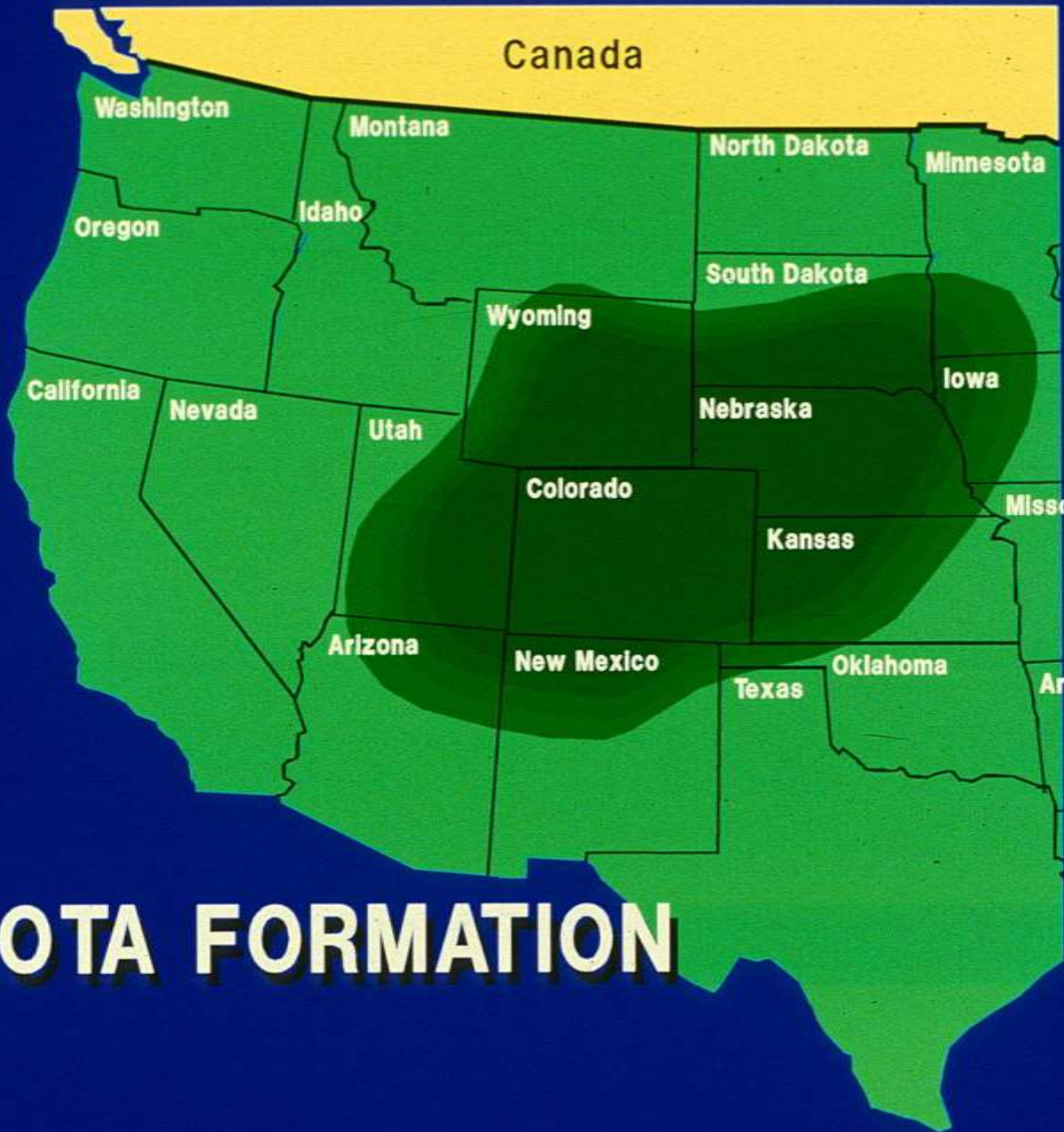
EVIDENCE FOR THE GENESIS FLOOD

4. UNUSUALLY WIDESPREAD SEDIMENTARY LAYERS

Not all formations are this widespread, and a number are larger.

Compared to their widespread distribution these formations are extremely thin. The Dakota Formation in the illustration provided above is the thin whitish layer below the silver grey Mowry Shale. It averages only 30 meters in thickness. The Morrison at the bottom of the group averages only around 100 meters thick. Proportionately, if the area of these formations were around that of an ordinary sheet of paper, the average thickness of the formations would be less than that of the sheet of paper itself.

The next two figures illustrate the extent of these formations on maps of the western part of the United States. The Morrison extends from New Mexico in the southern US clear into Canada.



DAKOTA FORMATION

MORRISON FORMATION



EVIDENCE FOR THE GENESIS FLOOD

4. UNUSUALLY WIDESPREAD SEDIMENTARY LAYERS

It is hard to imagine the conditions that would spread these thin rather unique deposits over such widespread areas. To move the sediments over even just small portions of such immense areas would require very unusual catastrophic levels of energy.

Furthermore, you need extremely flat areas without major breaks, on which to spread these flat formations. This suggests little time for erosion between the deposition of the formations. Erosion tends to produce an irregular topography, making it difficult to spread the thin sediments that are unique for each formation across tremendously widespread regions.

In terms of distribution, the sediments of the earth reflect conditions that fit well with what would be expected during the rapid catastrophic Genesis Flood. They do not at all reflect present conditions where sedimentary deposits tend to be small and localized.

Geologists who do not believe in the Flood occasionally comment on the incongruence between what we see going on now on the surface of the earth compared to what is seen in the sedimentary layers. The next frame is an example.

Brett, Carlton E. 2000. A slice of the “Layer Cake”: The paradox of “Frosting Continuity.” PALAIOS 15:495-498.

“... beds may persist over areas of many hundreds to thousands of square kilometers precisely because they are the record of truly, oversized events.”

“The accumulation of the permanent stratigraphic record in many cases involves processes that have not been, or cannot be observed in modern environments. ... there are the extreme events ... with magnitudes so large and devastating that they have not, and probably could not, be observed scientifically.”

“I would also argue that many successions show far more lateral continuity and similarity at a far finer scale than would be anticipated by most geologists.”

EVIDENCE FOR THE GENESIS FLOOD

5. RATES OF EROSION OF THE CONTINENTS WAY TOO FAST

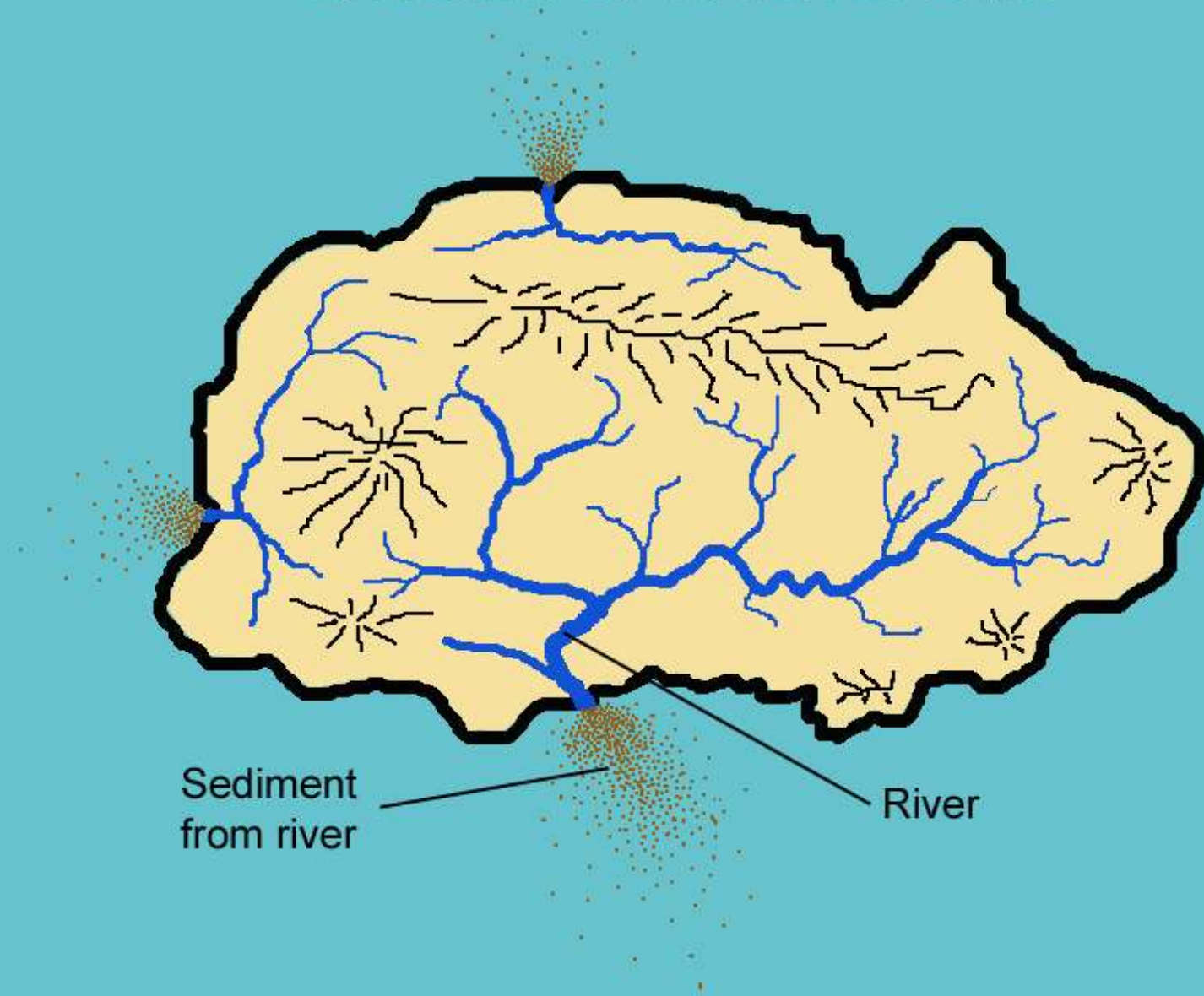
The standard geological time scale proposes that our continents are billions of years old. On these continents we have rock layers assumed to be very young to very old comprising the geologic column. Furthermore, our continents are being eroded away as weathering, rain and streams remove sediments that are carried by rivers to the ocean.

It turns out that at the rate rivers are carrying sediments to the ocean, our continents could have been eroded away many times, probably over a hundred times, if they are as old as generally suggested.

This data challenges the validity of the standard geologic time scale, and makes the Flood model all the more plausible.

Erosion is quite easy to measure. You can tell how fast the basin of a river is being eroded by measuring how fast the river carries sediment to the ocean at the mouth of the river. The next figure of an island illustrates the process.

EROSION OF RIVER BASINS



EVIDENCE FOR THE GENESIS FLOOD

5. RATES OF EROSION OF THE CONTINENTS WAY TOO FAST

You can measure the erosion for all the rivers of an island and calculate how long it will take to erode the island away. You can do the same for continents, and calculate how long it would take to erode them away. This has been done many times for the continents of the earth, and the results of twelve such studies are presented in the next frame.

Using the average from all these studies, it turns out that over the earth the rivers are carrying an average of around **25,000 million metric tons of sediment to the oceans every year.**

From this it has been calculated that our continents are being eroded away at the rate of **61 mm/1000 years.** This may seem slow, but if extended over the billions of years proposed by geologists, the continents should all be gone a very long time ago.

ESTIMATES OF THE RATE AT WHICH SEDIMENTS REACH THE OCEAN

AUTHOR (DATE)	MILLION METRIC TONS PER YEAR
Fournier (1960)	58,100
Gilluly (1955)	31,800
Holleman (1968)	18,300
Holmes (1965)	8,000
Jansen and Painter (1974)	26,700
Kuenen (1950)	32,500
Lopatin (1952)	12,700
McLennan (1993)	21,000
Milliman and Meade (1983)	15,500
Milliman and Syvitski (1992)	20,000
Pechinov (1959)	24,200
Schumm (1963)	20,500

EVIDENCE FOR THE GENESIS FLOOD

5. RATES OF EROSION OF THE CONTINENTS WAY TOO FAST

Our continents average 623 meters in elevation, hence at an average rate of erosion of 61 mm/1000 years, they should be eroded to sea level in only about 10 million years. Are they billions of years old?

In the context of the Genesis Flood it needs be kept in mind that towards the end of that Flood the waters receding off the continents would cause extremely rapid erosion.

If according to present rates we could erode the continents down in 10 million years, in just one billion years, you could erode them 100 times. Of course you can erode them only once, because you have nothing left to erode after you have eroded them once.

The next frame quotes two geologists, confirming that well recognized figure of eroding our continents in 10 million years. They comment about the dilemma.

Dott RH, Batten RL. 1971. Evolution of the Earth. New York: McGraw-Hill, p 136.

“North America is being denuded at a rate that could level it in a mere 10 million years, or, to put it another way, at the same rate, ten North Americas could have been eroded since middle Cretaceous time 100 m.y. ago. If we next assume the present rate of erosion and exposed continental volumes to have been constant over, say, the past 1 billion years, then we would expect a staggering 30,000-meter-thick layer of sediments to cover the sea floors today. Apparently we have erred badly in making our assumptions.”

EVIDENCE FOR THE GENESIS FLOOD

5. RATES OF EROSION OF THE CONTINENTS WAY TOO FAST

In these calculations, it needs to be kept in mind that man's activities, especially agriculture, have increased the rate of erosion, hence that rate was slower in the past. It has been estimated that at present, erosion is double what it was before agriculture, but some suggest less. On the basis of doubling, we would expect that the continents could have been eroded away 100 to 150 times in their assumed two to three billion year existence. But they are still here!

As mentioned earlier, some geology textbooks try to suggest that the continents are still here because they have been renewed from below. That is an unrealistic suggestion. As we examine the continents we find rocks assumed to be from very old to very young. The whole geologic column is still there and very well represented. We have not gone through even one complete cycle of erosion and renewal.

Rates of erosion challenge the long geologic time, and also the time usually implied for the intriguing features we call **paraconformities** (disconformities) that we will now consider.

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

To understand the challenge **paraconformities** pose to geologic time you need to keep several important factors in mind.

Often when you are looking at an extensive sequence of sedimentary layers, one or more parts of the geologic column are missing. In other words, there are gaps. At gaps there is nothing there! A paraconformity is a special kind of gap in the geologic layers.

We determine that there are gaps because in other parts of the earth the missing parts of the geologic column are represented. For instance if the Jurassic is missing between the Triassic and Cretaceous in a particular locality you have a gap.

If the sediment layers above and below the gap are parallel, (or you see no break) that contact is called a paraconformity.

To put it simply, a paraconformity is a **flat gap** where the layers above and below the gap are **parallel**.

The arrow in the next figure points to a paraconformity in the Grand Canyon. According to the geologic time scale, this is a 6 million year gap; i.e. the light colored layer above the tip of the arrow is considered to be 6 million years younger than the reddish layer just below it.



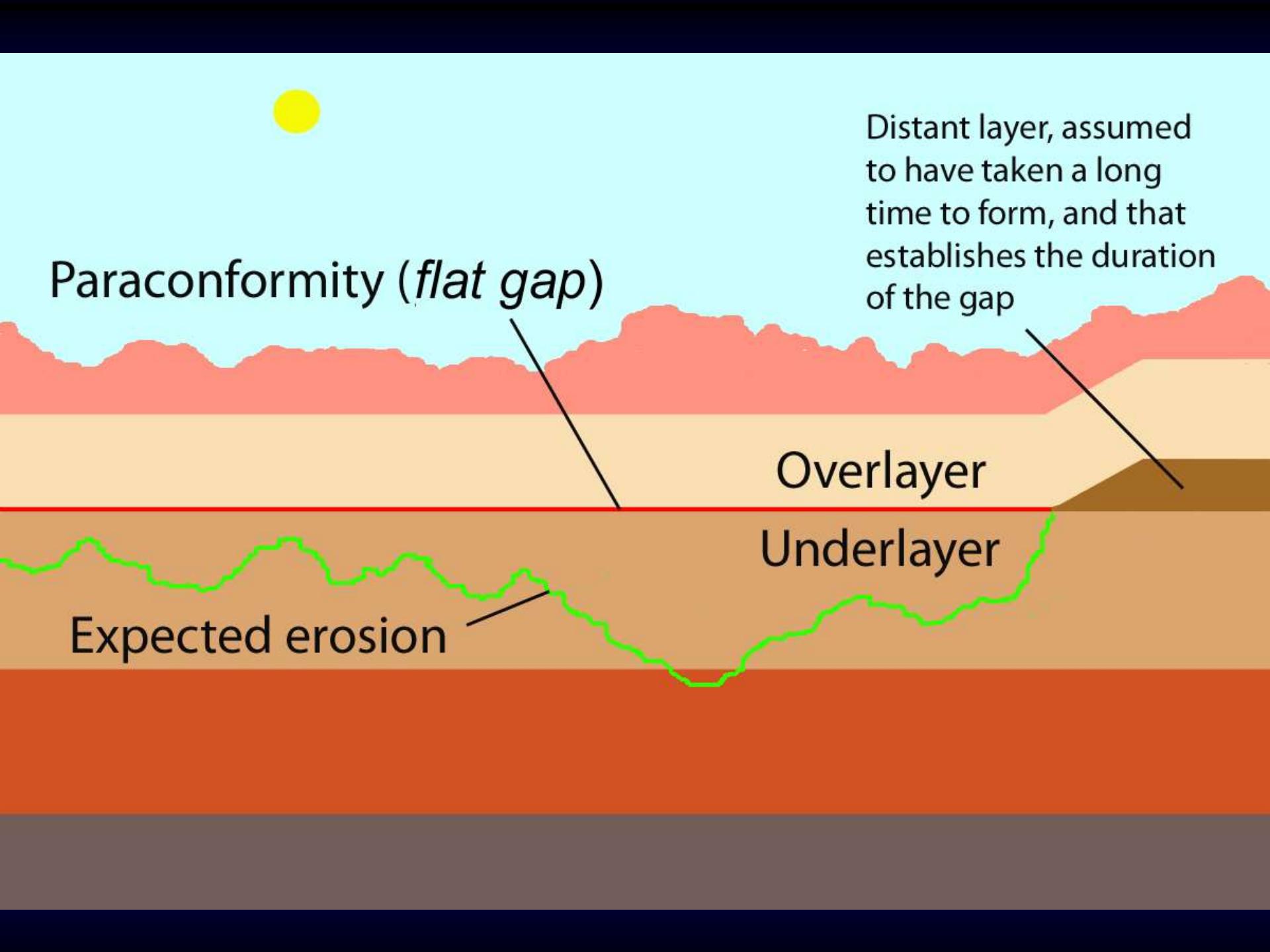
EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

The importance of paraconformities is that they challenge the geologic time scale of billions of years for depositing the sedimentary layers of earth's crust. They are what would be expected for the Genesis flood.

In a paraconformity the layer just below the gap is especially important. It is sometimes called the **underlayer**. See the next figure. The usual lack of evidence at the surface of the underlayer for the long ages postulated for the gap, especially the **lack of erosion of the underlayer**, suggests that the long geologic ages never occurred.

During the long time for the gaps that is proposed you would expect a lot of weathering of the underlayer and especially its erosion. Erosion is dominantly irregular as the landscape is cut down by rain, streams, etc. However, the flatness of the underlayer at the paraconformities indicates that there was no time for erosion. This flatness is what would be expected for the rapid events of the genesis Flood, but not for the millions of years suggested for exposure of the rocks at paraconformities.



Paraconformity (*flat gap*)

Distant layer, assumed to have taken a long time to form, and that establishes the duration of the gap

Overlayer

Underlayer

Expected erosion

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

On our restless earth, over the millions of years postulated, you either have erosion or deposition of the crust. If there is deposition you have no gap, if there is erosion you should not have flat paraconformities. Since we have the flat paraconformities, it does not look like the millions of years suggested ever occurred.

The next picture illustrates how **irregular erosion tends to be**. This is a view of the Colorado River cutting its way through eastern Utah. The Grand Canyon we have mentioned earlier is an extreme example of erosion. Flat erosion occurs only if you have a very hard layer under soft layers. Most paraconformities do not have a hard underlayer.

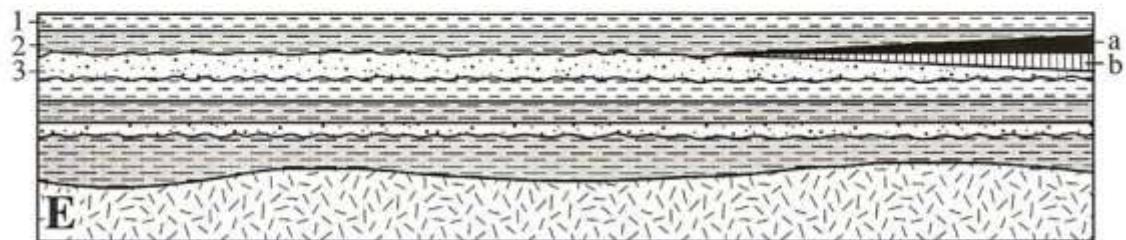
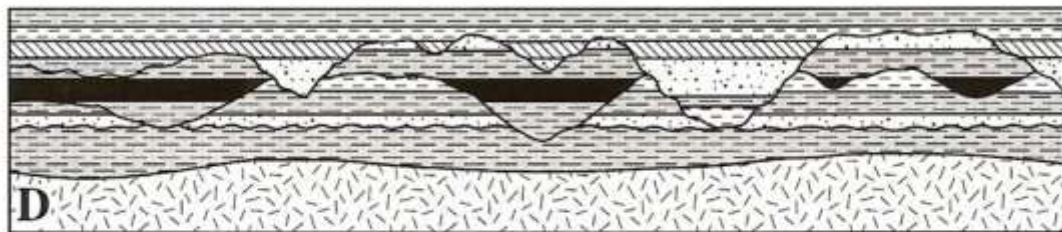
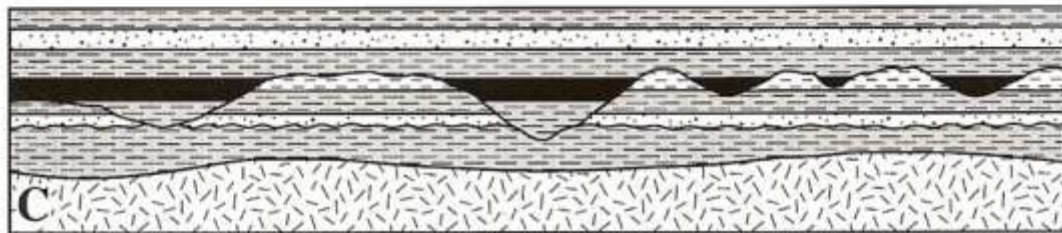
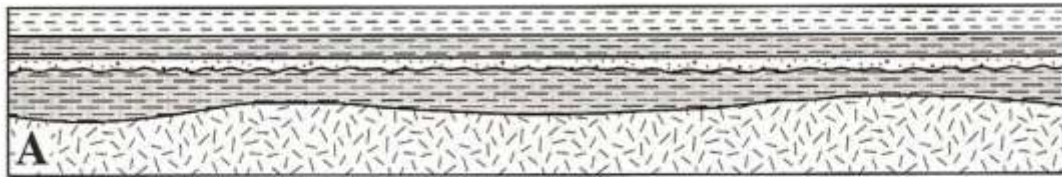


EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

The problem paraconformities pose for the long geologic ages is illustrated again in the next figure. (A) is normal horizontal deposition. (B) is normal erosion over a long time period. (C) is renewed horizontal deposition. The irregular past erosion surface is well preserved and obvious. (D) illustrates another cycle of erosion and deposition following C. If we had the long gaps of time that are suggested for the paraconformities the geologic layers should look like D. (E) This is more how the geologic layers look and what you would expect from the rapid Genesis Flood with little time at the gaps.

In (E), if you assume that layers (a) and (b) took millions of years to form this means that you have a paraconformity between layers (2) and (3). If millions of years were involved in laying down layers (a) and (b) you should have pronounced erosion of the underlayer (3). Since it is flat, it looks like the millions of years never occurred.



EVIDENCE FOR THE GENESIS FLOOD

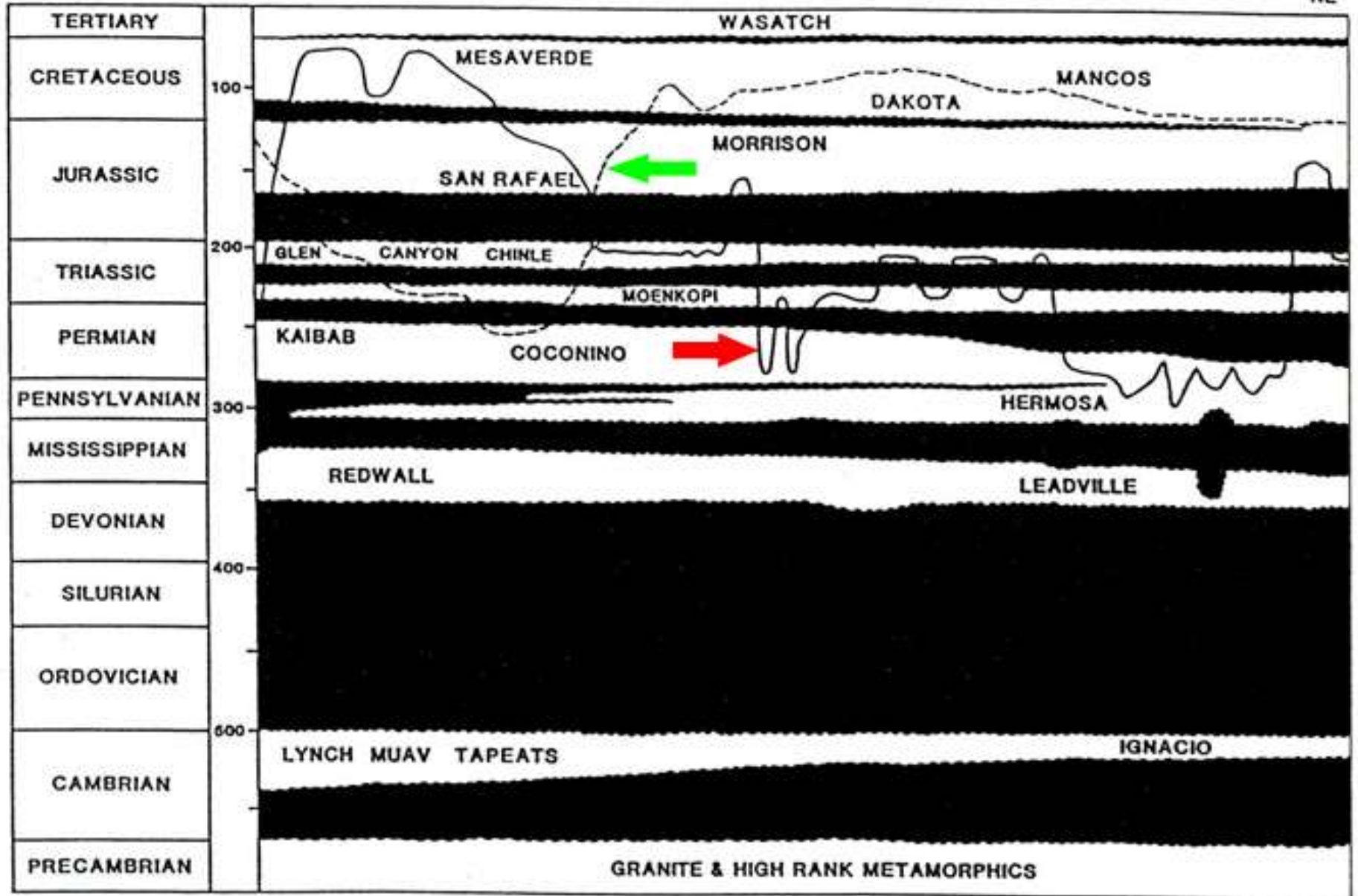
6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

The next figure represents the geologic layers found northeast of the Grand Canyon, displayed according to their assumed age, which is given in the column near the left in millions of years. The rock layers are the white parts and they actually lie on top of each other, while the black parts are the gaps whose thickness reflects their length of time. Most of the black layers represent gaps of paraconformities. The chart represents rock layers 3.5 km thick, and a 133 km horizontal distance, hence there is considerable vertical exaggeration in the illustration.

The present irregular erosional surface of the region, in two different localities, is represented by the dashed line (green arrow) that is probably the flattest in region, and the solid line (red arrow) that reflects more pronounced erosion. Note the striking contrast between the irregularity of the present surface (lines at arrows) with the flatness of the rock layers (white layers). If the rock layers had been laid down over millions of years, you would expect lots of irregular erosion of the underlayers, especially at the very long gaps illustrated by the thick black layers.

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EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERES (PARACONFORMITIES)

Sometimes one finds minor erosion of the underlayer at paraconformities, and some erosion would be expected during the Genesis Flood, but the erosion found is very minor compared to what would be expected over the long ages suggested for the gaps. Furthermore, as mentioned earlier, according to present rates of erosion and standard geologic time, all the rock layers should have been eroded away many times.

The next few slides are pictures of paraconformities identified at the end of red arrows. The length of time for the assumed gap is also given. On the pictures “Ma” stands for: millions of years.

Sometimes the part of the geologic column that is missing is indicated as well as the amount of erosion expected which is based on average rates of erosion for continents and is what would be expected for the assumed length of time for the paraconformity (the gap).



← 10 Ma
← 20 Ma

Dead Horse Point Utah.
Expected erosion at 10 Ma gap is 300 m, at 20 Ma gap it is 600 m.

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

Paraconformities tend to be widespread. The 10 million year gap shown in the last illustration is the same one shown in the next one that is near the town of Virgin, Utah, but the two localities are 340 Km apart.



10 Ma →



6 Ma →

14 Ma →

100 Ma →

Grand Canyon, Arizona

- Top arrow: 6 Ma, expected erosion, 180 m
- Middle arrow: 14 Ma, expected erosion, 420 m
- Lowest arrow: 100 Ma, expected erosion, 3000 m

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

At the lowest arrow in the previous slide, both the Ordovician and Silurian periods of the geologic column are missing. Some geologists who believe in long ages and who have studied the Grand Canyon for years have the following comments to make about the paraconformities designated by the two lowest arrows of the previous slide:

Beus SS, Morales M, editors. 1990. Grand Canyon Geology. Oxford University Press, p 158, 111.

Ronald C. Blakey

“Contrary to the implications of McKee’s work, the location of the boundary between the Manakacha and Wescogami formations [where the 14 m.y. gap is] can be difficult to determine, both from a distance and from close range.”

Stanley S. Beus

In referring to some localities of the very long lower gap states:
“ Here the unconformity [gap, paraconformity], even though representing more than 100 million years, may be difficult to locate.”



200 Ma

16 Ma

Palo Duro Canyon, Texas

**At the 200 Ma gap, Jurassic, Cretaceous and Lower Triassic missing
Expected erosion in 200 Ma is 6000 m, in 16 Ma is 500 m**



190 Ma →

Petrified Forest National Park, Arizona
Jurassic, Cretaceous and most of Cenozoic missing at 190 Ma gap.
Expected erosion in 190 Ma is 5700 m.

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

The next two figures illustrate one (the same) paraconformity. The first picture is from north of Vernal, Utah: the second from Continental Divide, New Mexico. Part of the Lower Cretaceous is missing at the paraconformity. The reason the gap is considered to be 20 million years (Ma) in Utah and 40 million years in New Mexico is that in northern Utah you have the tan Cedar Mountain Formation just above the paraconformity filling in part of the gap. That layer is missing in central New Mexico resulting in a greater gap. These two localities are 570 kilometers apart. You can follow the 40 million year gap for 200 kilometers as you travel in central New Mexico.



20 Ma





40 Ma

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

- The famed paleontologist Norman Newell has occasionally addressed the problem of paraconformities. His comments are not particularly encouraging for the long geological ages model.
- The next two slides quote from his publications.

Newell ND. 1984. Mass extinction: unique or recurrent causes? In: Berggren WA, Van Couvering, JA, editors: Catastrophes and earth history: The new uniformitarianism, p 115-127. Princeton Univ. Press.

“A puzzling characteristic of the erathem boundaries and of many other major biostratigraphic boundaries [boundaries between differing fossil assemblages] is the general lack of physical evidence of subaerial exposure. Traces of deep leaching, scour, channeling, and residual gravels tend to be lacking, even when the underlying rocks are cherty limestones (Newell 1967b). **These boundaries are paraconformities that are identifiable only by paleontological [fossil] evidence.”**

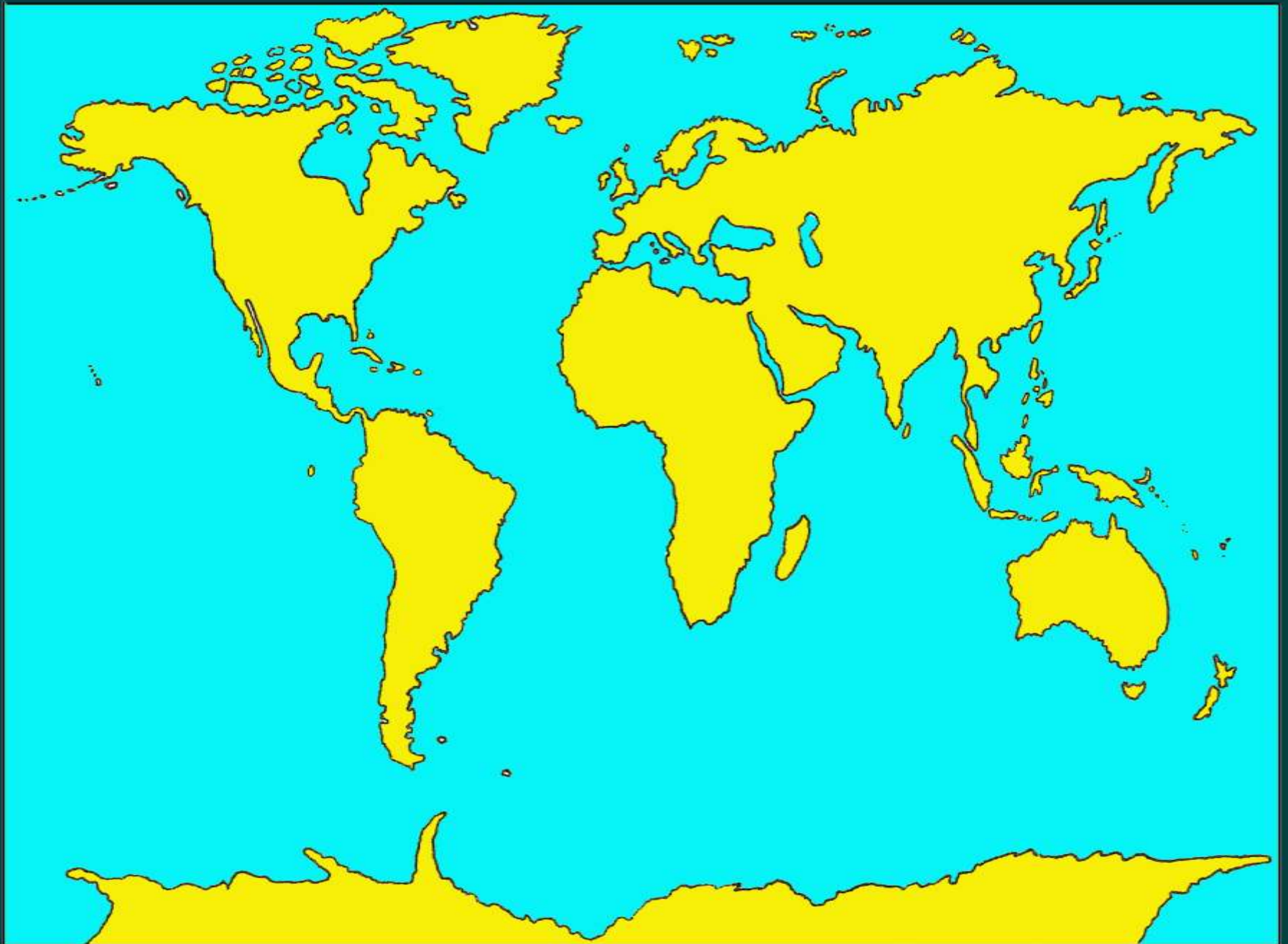
Newell ND. 1967. Paraconformities. In: Teichert C, Yochelson EL, editors: Essays in paleontology and stratigraphy, p 164. Department of Geology, University of Kansas, Special Publication 2. University of Kansas Press.

“The origin of **paraconformities is uncertain, and I certainly do not have a simple solution to this problem.”**

EVIDENCE FOR THE GENESIS FLOOD

FLAT GAPS IN THE SEDIMENTARY LAYERES (PARACONFORMITIES)

- The lack of erosion at the paraconformities challenges the long geologic ages, and it appears that a lot of assumed geologic time is missing at these gaps. They are common enough in various parts of the geologic column over the world that it looks like most of the long geologic time is challenged in one place or another by paraconformities.
- If geologic time is missing in one place on the earth it is expected to be missing everywhere, because time is a universal feature of all the earth. It cannot be missing in only one part of the earth.



EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

The next two slides are of considerable historical interest. A century and a half ago, Charles Darwin was aware of paraconformities although he does not use that specific term. In his famous book *The Origin of Species* he refers to them as a possible explanation for the gaps in the fossil record. The next slide quotes some of his comments. His explanation that these might represent the bottom of the sea is incorrect because sediments do accumulate at the bottom of the sea, hence you have no gap. Furthermore, none of the examples we have shown represent bottom of the sea deposits. It is easy to identify bottom of the sea deposits by their fossils.

The second slide is a comment from Adam Sedgwick who was Darwin's professor of geology at Cambridge University. Sedgwick disagreed with Darwin and his comment emphasizes the lack of physical evidence of time at these paraconformities.

Charles Darwin. 1859. *The Origin of Species*
**Chapter 10: On the Imperfection of the Geological
Record**

“The many cases on record of a formation conformably covered [parallel layers], after an immense interval of time, by another and later formation, without the underlying bed having suffered in the interval any wear and tear, seem explicable only on the view of the bottom of the sea not rarely lying for ages in unaltered condition.”

ADAM SEDGWICK: THE SPECTATOR

7 April 1860, p 334-335

“I think it would be a very rash assertion to affirm that a great geological interval took place between the formation of the upper part of the new red sandstone and the lias. Physical evidence is against it. To support a baseless theory, Darwin would require a countless lapse of ages of which we have no commensurate physical monuments;”

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

The next few figures illustrate some
paraconformities in other parts of the earth.



3 Ma



The fine line across the picture (arrow) is the Marshall Paraconformity, here seen in New Zealand. The paraconformity is widespread through the South Pacific. The gap is assumed to be 3 Ma and much more.



Valley of the Rhone River in Switzerland.
The arrow points to a gap of some 40 Ma.
Due to dramatic folding the layers are reversed!



6 Ma

Clifton, Australia. Gap at top of coal seam is 6 Ma. Could coal or vegetation forming the coal survive for 6 Ma?

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

The geologist Van Andel comments about another paraconformity in Venezuela. According to the standard geological time scale there is a 15 million (Myr) year gap, and you would expect on an average 450 meters of erosion during that time, yet he could not find the gap. The next slide quotes his report.

Van Andel TH. 1981. Consider the incompleteness of the geological record. *Nature* 294:397-398.

“I was much influenced early in my career by the recognition that two thin coal seams in Venezuela, separated by a foot of gray clay and deposited in a coastal swamp, were respectively of Lower Paleocene and Upper Eocene age. The outcrops were excellent, but even the closest inspection failed to turn up the precise position of that 15 Myr gap.”

EVIDENCE FOR THE GENESIS FLOOD

6. FLAT GAPS IN THE SEDIMENTARY LAYERS (PARACONFORMITIES)

Not only is there a lack of erosion at paraconformities, but there are some exposed flat surfaces of the earth that are considered to be very old that do not show any erosion over the millions of years of exposure postulated. Kangaroo Island, South Australia is an example. The 50 X 150 kilometer island is almost all flat. Based on radiometric dating and fossil evidence, the surface of the island is assumed to be around 160 million years. Yet the surface is extremely flat. In 160 million years, we would expect 4800 meters of erosion. As can be seen in the next figure the island is very flat. It very much looks like the surface of Kangaroo Island is not 160 million years old!

160 Ma 



EVIDENCE FOR THE GENESIS FLOOD

6. CONCLUSIONS ABOUT FLAT GAPS (PARACONFORMITIES)

- 1. Because paraconformities (flat gaps) are so abundant over the earth, they represent an important component for the interpretation of earth history.**
- 2. Paraconformities pose a serious challenge to the standard geologic time scale, radiometric dating, and interpretations of extended time for the development of life on earth.**
- 3. Paraconformities are what would be expected from the rapid deposition of sediments during the Genesis flood.**

EVIDENCE FOR THE GENESIS FLOOD

7. INCOMPLETE ECOSYSTEMS

In our food chain, animals usually get their energy from plants that get their energy from the sun. If you don't have plants for the animals to eat, they don't survive.

However, in several localities in the fossil record, we find the animals, but there does not seem to be enough plant material for them to survive. How could they survive and evolve for millions of years without an adequate food supply.

For instance, in the Coconino Sandstone layer of the Grand Canyon we find hundreds of animal trackways, almost all of which are going uphill, -- they might be escaping the Flood waters! – and animals were obviously there; but no fossil plants have been found so far in the Coconino. If the animals lived there for the postulated millions of years for the Coconino, what did they eat? The data favors the idea that the Coconino was deposited rapidly during the Flood?

The next illustration designates the Coconino Sandstone and the following shows some of the tracks that appear to have been formed on soft mud.





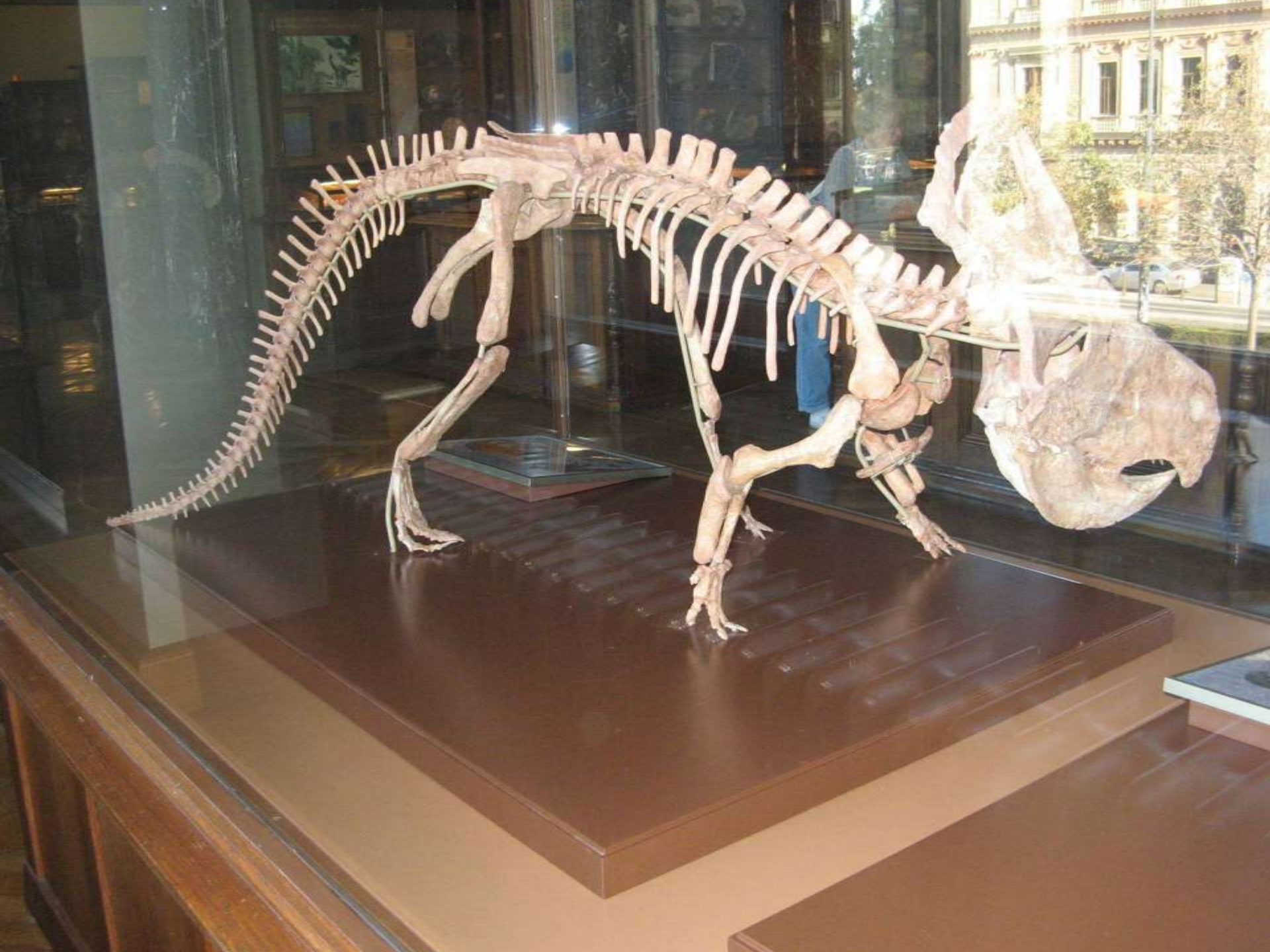
Photo courtesy Leonard Brand

EVIDENCE FOR THE GENESIS FLOOD

7. INCOMPLETE ECOSYSTEMS

The same kind of situation seems to apply to the dinosaur *Protoceratops* in Mongolia. Dinosaurs would seem to require lots of food. The next figure illustrates a *Protoceratops* skeleton. The flat teeth in the back of the jaw, unquestionably indicate that this was a plant eater.

Following the skeletal picture is a quotation from paleontological researchers in Mongolia delineating the dilemma of lack of plants.



Fastovsky DE, et al. 1997. The paleoenvironments of Tugrikin-Shireh (Gobi Desert, Mongolia) and aspects of the taphonomy and paleoecology of *Protoceratops* (Dinosauria: Ornithischia). *Palaios* 12:59-70.

“The abundance of an unambiguous herbivore (*Protoceratops*) and a rich trace fossil fauna [probably tubes made by insects] reflect a region of high productivity [i.e. of food by plants.] The absence of well-developed plant colonization is, therefore anomalous and baffling.”

The animals need plants to survive, but few plants were found.

EVIDENCE FOR THE GENESIS FLOOD

INCOMPLETE ECOSYSTEMS

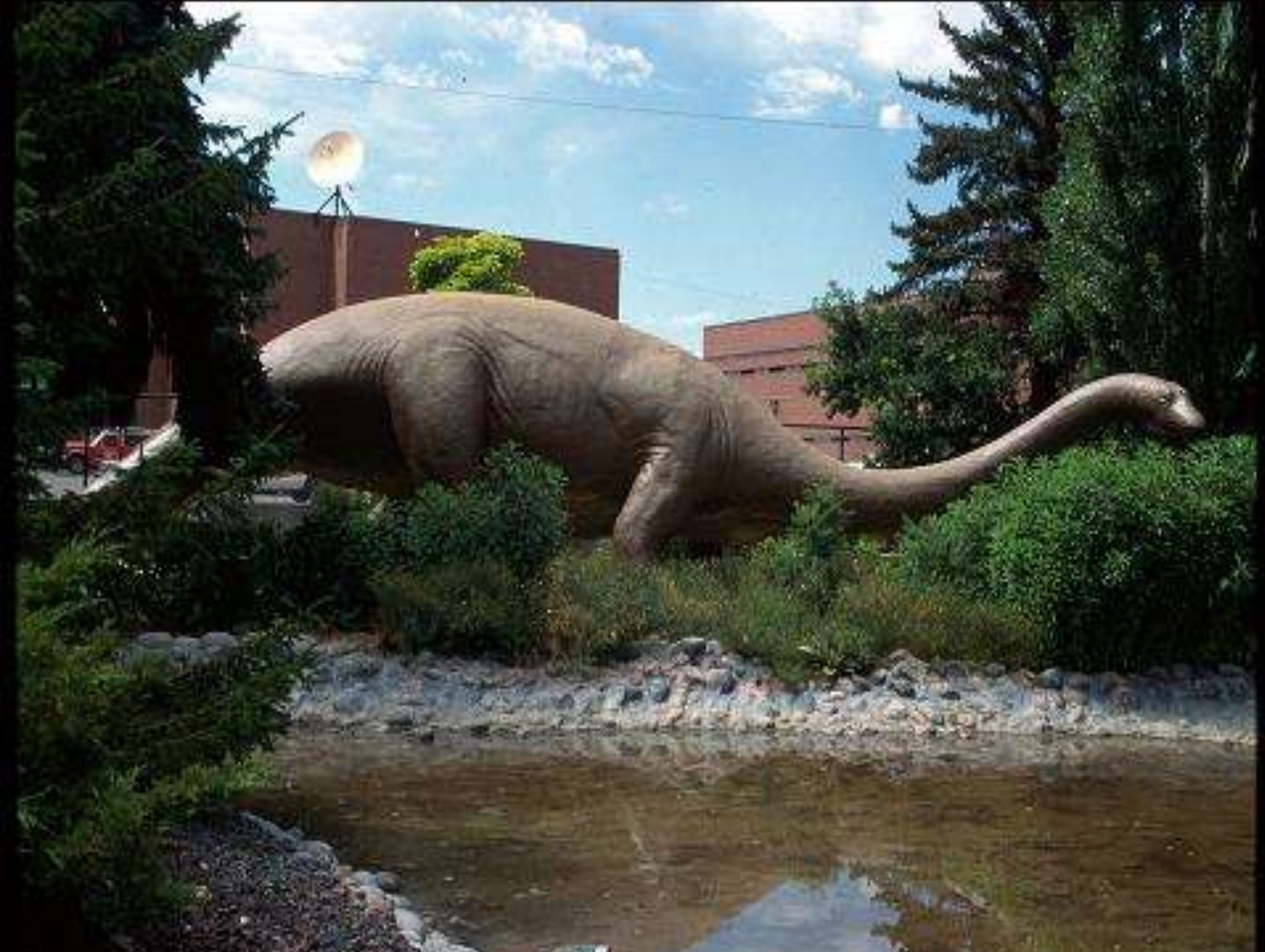
The same kind of situation seems to be the case for the Morrison Formation in the United States. The next four slides illustrate this.

- The first slide is a general view of the Morrison Formation
- The second shows dinosaur bones in the Morrison
- The third is a life size model of a *Diplodocus* dinosaur
- The fourth slide delineates the problem by quoting from the scientific literature about the Morrison.

How did these dinosaur behemoths survive for millions of years without adequate food? The Morrison data also favors the Flood model. The animals did not live in the Morrison for millions of years. They were buried there during the flood.







White TE. 1964. The dinosaur quarry. In: Sabatka EF, editor. Guidebook to the Geology and Mineral Resources of the Uinta Basin. Salt Lake City: Intermountain Association of Geologists, p 21-28.

The paleontologist T. E. White comments: “Although the Morrison plain was an area of reasonably rapid accumulation of sediment, **identifiable plant fossils are practically nonexistent.**”

White further muses that by comparing to elephants the dinosaur *Apatosaurus* “would consume 3 ½ tons of green fodder daily.”

Dinosaurs need food if they are going to survive and evolve for the millions of years evolutionists postulate for the Morrison, but the evidence there for plants is sparse. Could the waters of the Genesis Flood have **floated and transported** away the plant material from the region where the dinosaurs originally lived?

EVIDENCE FOR THE GENESIS FLOOD

8. UNUSUAL COAL DEPOSITS

Water is a great sorting agent. At times, floating tree logs and branches are transported by water and deposited as piles on river banks and shorelines.

When we look into the rock layers, we sometimes find huge coal deposits that originally came from trees and other vegetation. These huge deposits indicate transport of the original vegetation on a scale entirely anomalous to our present earth, but in agreement with the powerful activity one would expect from the Flood.

The next picture shows a deep coal deposit at Morwell, Australia. Note the power line poles for scale and note the parallel layers of coal and clay deposit towards the lower right corner. Such parallel deposits are typical of water transport and not of growth in place as commonly attributed to coal deposits. The huge size and the layering of the coal favor the kind of activity expected during the Genesis Flood and not at all what goes on under normal conditions on our earth.



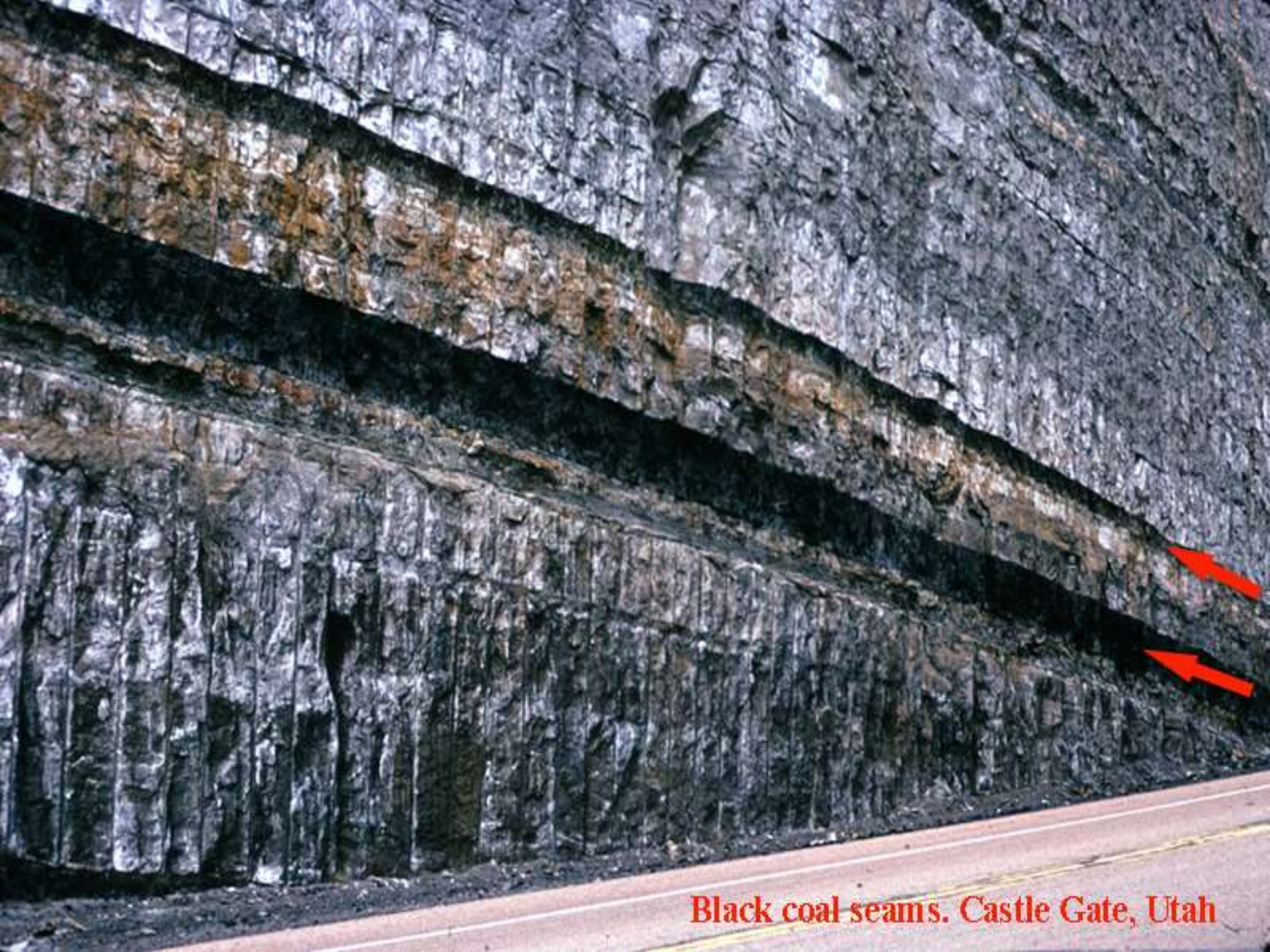
Morwell, Australia. Soft coal deposit. Note power line poles for scale.

EVIDENCE FOR THE GENESIS FLOOD

8. UNUSUAL COAL DEPOSITS

The following picture depicts some typical coal seams as found in Utah. The **parallel nature** of these coal deposits suggests transport as expected during the Flood and not local growth of vegetation in the place where the coal is presently found, as is commonly interpreted in general for coal seams.

The second picture is that of a coal parting near Castle Gate, Utah. Occasionally, in coal seams we find thin widespread sedimentary layers within a coal seam called a **parting**. It would take widespread water activity to spread these thin partings which can sometimes cover well over 1,000 square kilometers! The red arrow points to one of these partings in a black coal seam. The coal seam is about 40 centimeters thick. Partings are further evidence for the water transport expected during the Flood.



Black coal seams. Castle Gate, Utah



The arrow points to a thin parting layer within a darker coal seam

CONCLUSIONS

THE FOLLOWING DATA FAVOR THE GENESIS FLOOD

- 1. Abundant sediments from the oceans on the continents**
- 2. Abundant underwater activity such as turbidites and submarine fans on the continents**
- 3. Continent-wide current activity**
- 4. Extremely widespread sedimentary deposits on the continents**
- 5. Rates of erosion of continents way too fast to reconcile with the standard geologic time scale. The continents should have been eroded away long ago; they are not that old**
- 6. Lack of erosion at the gaps (paraconformities) in the sedimentary layers; it looks like they were laid down rapidly**
- 7. Incomplete ecological systems, lack of plant food for the animals**
- 8. Anomalously thick and widespread coal deposits**

REVIEW QUESTIONS – 1

(Answers given later below)

- 1. Flood stories overwhelmingly dominate the folk-literature dealing with past world catastrophes. Why does it not appear that these flood stories are just many local floods thought to be worldwide?**
- 2. What peculiarity about the distribution of marine sedimentary layers over the earth suggests a Genesis Flood? Why is subduction of marine sediments into the trenches of the ocean floor not a cause for this peculiarity?**
- 3. Why is the abundance of turbidites on the continents evidence for the Flood?**
- 4. At present, on the continents, sediments are being deposited on river banks and lakes in all kinds of directions. What is the situation as far as direction of deposition of sediments in the Paleozoic (lower) and Mesozoic (middle) parts of the Phanerozoic, and what does this mean with respect to the Genesis Flood ?**

REVIEW QUESTIONS – 2

- 5. Why is a tremendously widespread layer like the Dakota Formation evidence for the Flood?**
- 6. How fast are current rates of erosion and why and by how much should you reduce those rates of erosion when considering what happened in the distant past? What do these erosion rates challenge?**
- 7. Why are the paraconformities that we find over the earth an essentially impossible dilemma for those proposing the long geologic ages?**
- 8. Explain why incomplete ecosystems challenge the long geologic time proposed for the deposition of the environments in which they are found?**
- 9. What features of coal deposits suggest that they represent transported vegetation instead of plants growing where the coal is found, a process that would take many years?**

REVIEW QUESTIONS AND ANSWERS - 1

1. Flood stories overwhelmingly dominate the folk-literature dealing with past world catastrophes. Why does it not appear that these flood stories are just many local floods thought to be worldwide?

Flood stories are six times as common as any other causes of world calamities. Such dominance strongly suggests that this must have been a real event. If the perceived worldwide calamities were many localized events over long periods of time we would also expect a more or less even distribution of various other causes over that time. That is not the case. One comprehensive study does not even mention earthquakes, drought, and pestilence, while flood stories are referenced 122 times.

REVIEW QUESTIONS AND ANSWERS - 2

- 2. What peculiarity about the distribution of marine sedimentary layers over the earth suggests a Genesis Flood? Why is subduction of marine sediments into the trenches of the ocean floor not a cause for this peculiarity?**

Strangely, the marine sediments are thicker on the continents that are higher in elevation than in the oceans where they form. It looks like a lot of sediments from the ocean has been poured onto the continents.

Subduction of marine sediments into the trenches is not an explanation for the thinness of marine sediments in the ocean because subduction is slow. It is at least five times as slow as for the sediments being brought into the ocean by the rivers.

- 3. Why is the abundance of turbidites on the continents evidence for the Flood?**

Because turbidites form only under water.

REVIEW QUESTIONS AND ANSWERS - 3

4. At present, on the continents, sediments are being deposited on river banks and lakes in all kinds of directions. What is the situation as far as direction of deposition of sediments in the Paleozoic (lower) and Mesozoic (middle) parts of the Phanerozoic, and what does this mean with respect to the Genesis Flood ?

In the Paleozoic and Mesozoic one finds a strong dominance of deposition in the same direction over entire continents. This strongly suggests worldwide catastrophic transport of sediments as expected during the Flood.

5. Why is a tremendously widespread layer like the Dakota Formation evidence for the Flood?

Spreading a thin layer like the Dakota Formation over 815,000 square kilometers, unlike our local floods, would require major catastrophic conditions with tremendous energy as expected for the Flood. Furthermore the flatness of the depositional surfaces indicates little time for erosion which produces an irregular topography.

REVIEW QUESTIONS AND ANSWERS - 4

6. How fast are current rates of erosion and why and by how much should you reduce those rates of erosion when considering what happened in the distant past? What do these erosion rates challenge?

Present rates are about 61 millimeters per 1000 years. Agricultural practices have doubled erosion rates, so they should be cut in half for the distant past. These slower rates still severely challenge the much accepted geologic time scale of long ages instead of the Flood.

7. Why are the paraconformities that we find over the earth an essentially impossible dilemma for those proposing the long geologic ages?

Paraconformities cancel the millions of years proposed for the duration of the gaps they represent, because there is essentially no erosion there. The problem is that if you have slow deposition of sediment at the “gaps,” there is no gap; if you have no deposition, you should have erosion over the millions of years proposed; since you have neither deposition nor erosion, it looks as though the layers were laid down rapidly as expected for the Genesis Flood.

REVIEW QUESTIONS AND ANSWERS - 5

8. Explain why incomplete ecosystems challenge the long geologic time proposed for the deposition of the environments in which they are found?

Several formations provide fossil evidence of abundant animal existence, but they lack evidence of sufficient vegetation to support the animals. It is postulated that these animals lived for millions of years, but how could they do that without sufficient nutrition? The dilemma can be solved by proposing the sorting of the plants from the animals into different sedimentary layers by the waters of the Flood.

9. What features of coal deposits suggest that they represent transported vegetation instead of plants growing where the coal is found, a process that would take many years?

The abundance, flat contacts and widespread distribution of the coal seams strongly suggest mass transport. Furthermore, the presence of thin, widespread partings in the coal seams also suggest that these deposits would have been laid down by the Genesis Flood.

ADDITIONAL REFERENCES

Further discussion and many additional references for these topics can be found in the following publications by the author, Ariel A. Roth, Ph.D.

1. **ORIGINS: LINKING SCIENCE AND SCRIPTURE.** Hagerstown, MD. Review and Herald Publishing Association.
2. **SCIENCE DISCOVERS GOD: Seven Convincing Lines of Evidence for His Existence.** Hagerstown, MD. Autumn House Publishing, an imprint of Review and Herald Publishing Association.
3. Several articles published by the author can be found in the journal **ORIGINS** which the author edited for 23 years. For access see the Web Page of the Geoscience Research Institute www.grisda.org.
4. Other recommended URLs are:
 - Earth History Research Center <http://origins.swau.edu>
 - Theological Crossroads www.theox.org
 - Sean Pitman www.detectingdesign.com
 - Scientific Theology www.scientifictheology.com

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